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ART. I.—*An account of the Desquamation and change of Colour in a Negro of Upper Guinea, West Africa.* By THOS. S. SAVAGE, M.D., Corr. Mem. Boston Nat. Hist. Soc.; the National Institute, at Washington, D.C.; the Entom. Soc. of London, &c. [With a coloured plate.]

THE following sketch, it may be premised, is founded upon notes taken by the author at different times, in part, subsequently to the operation and changes described. The subject did not come under notice till the change of his natural colour had been accomplished. He was personally known, however, to other missionaries of the Prot. Epis. Ch., U. S. A., being a native of a settlement (Cavalla, about twelve miles east of Cape Palmas), where they have had a station in successful operation for years, under the charge of the Rev. Jno. Payne.

His name is Tah-too Duari. He is a member of the Grebo tribe, which inhabits, as the aborigines, Cape Palmas and the vicinity. His father and mother both were members of the same tribe and natives of the same region. The complexion of the former was decidedly black, that of the latter, "*yellow*," the two extremes observable in the tribe, and between which there is found almost any variety of shade. Tah-too's natural complexion was black, not presenting quite so deep a hue as his father's, being a shade or two lighter, perhaps, than the blackest.

He is about twenty-five years of age; rather under the average height of his tribe, measuring five feet and four and a-half inches, his proportions

are good; muscles well developed, and he has always appeared, it is said, to be in fine health.

In the beginning of March, 1844, he was at work a few miles to the interior of Cavalla, (which is directly on the sea-board,) clearing up a tract of land preparatory to their customary annual planting of rice. The immediate site of his farm was somewhat elevated, but had on two sides a wide-spread marsh. On a certain day considerable rain fell, which was succeeded by a clear, hot sun. In the evening, soon after retiring from his work, he was suddenly attacked with an acute, deep-seated pain in the head, back of the forehead and eyes, accompanied with vertigo. This was soon followed by a strong ague, and a distressing spasmodic action of the muscles of the throat and chest, attended by a suspension of the functions of the mucous membrane lining the laryngeal and pharyngeal passag es. The sensation in the latter case, as described, was that of extreme dryness in the fauces, and of a bone lodged in the throat, depriving him of the power of free deglutition, and respiration. He called for water under the idea that by thus forcing a passage, he would overcome the obstruction; little or no relief, however, followed. The pain in his eyes was aggravated during the night to an agonizing degree; the lids convulsively closed, not leaving the power of re-opening them. This was accompanied or succeeded by a flow of tears so profuse, that the attendants thought the ***balls must have bursted.*** These symptoms continued for a week with more or less severity, except the ague, the paroxysms of which were of daily recurrence. The intensity of the symptoms generally, during the period, varied with the temperature of the surrounding air. The heat of a fire and of the direct rays of the sun was intolerable, and, whenever so exposed, he would be instantly driven to seek a cooler position.

During the first night of the attack, an extremely annoying and painful sensation was experienced immediately under the skin, represented by him like the pricking of needles, and followed by an intense itching. The numerous papillæ of the skin then enlarged and gave to it a feeling, to use his own words, like that of a "*picked fowl.*" This eruption appeared first on his neck, and thence rapidly spread over his body. This symptom continued also through the week, varying in degree with the aërial temperature.

By the eighth day there was a subsidence of the symptoms generally, when the process of desquamation began. This continued three days—during which time the cuticle came off freely, in pieces of half an inch in diameter, down to a very minute furfuraceous exfoliation, and could be easily removed by the hand or other means.

His body now had lost its identity, and, instead of the complexion of a negro, presented a dingy yellow, like that of the sole of the foot after having been exposed to the action of salt water.

The whole operation from beginning to end, was unattended with any

perceptible excretion of oily, purulent or serous matter, except from the eyes; thence a discharge was had, first, of tears, as has been remarked, then, of a purulent fluid, and, he thinks, with the removal of the membrane from the sclerotica. Without commenting upon the probability or improbability of the latter statement, I would here remark, that the *dull yellowish white* so characteristic of the eye of the negro, is wanting, and the clearer white or bluish tinge of the white man's is present.

In about a month after the operation now described, the same prevenient symptoms occurred, though less in degree, when a second process of desquamation began. The cuticle now thrown off was thinner than the first, and the colour resulting that which he now presents. This cannot be said to be *really white*, except on the back of the hands, on the wrists, feet, and ankles. The skin on the hands is free from that coarseness and corrugated appearance peculiar to the race, and is as delicate and soft as my own, showing through the new cuticular medium the blue veins beneath. On the lower part of the back, on the abdomen, front of the thighs, and calves of the legs, there is a dark hue, much increased, however, by the thick black hair on those parts, which appears to be but little, if at all changed. On most other parts of the body there is a dull white; in some places a decided white, with considerable delicacy and softness of skin. His aspect is not that of a mulatto, but,—with the exception of his decidedly marked negro features, and the crispness of his hair,—that of a white man. Were it not for these points of exception, he would be taken for a legitimate member of the Caucasian family in any part of the world. But his unchanged and unchangeable outline, stamps him indelibly as the descendant of Ham.

He is extremely sensible to the heat of fire and the sun, and cannot come within that of either directly without great discomfort. His face and feet are inflamed, and the latter much swollen from the influence of the sun. The soles of his feet and palms of his hands are very tender, making it painful for him to walk, or handle rough objects. His toe and finger nails have begun to show the mysterious influence at work in his system. The process of detachment is regularly though slowly going on; a distinct line of demarkation is visible between the new and old nails; the former having advanced about one-third the distance. The posterior portion of the latter presents a flaking appearance, showing most clearly its laminated structure. The new portion, in its flatness, clearness, and delicacy, exhibits a striking contrast to the old, which is convex, dull in aspect and thick.

The hair, as already observed, is not much changed. The border only of the scalp covered with hair came off;—the superior portion, cuticle and hair, remains unchanged.

It is a custom with many of the young men of this tribe to engage as boatmen on board of vessels while on the coast. Such as are designed by

their parents for this service, are marked, while young, in the face, and pass under the well-known name of *kroomen;* an appellation not now, as formerly, confined to a particular tribe. This *kroo mark* usually consists of a broad blue stripe running from the hair on the scalp, down the forehead to the end of the nose; and an arrow-head of the same colour at the outer angle of each eye, running backwards. These marks are made by deep incisions extending to the cutis, and applying to the fresh wound the soot of an indigenous gum burnt under an earthen pot or brass kettle. Its shade depends upon the hue of the subject, being a very dark blue in the jet negro, and the opposite in one of lighter complexion. Tah-too is strongly marked thus; with his changed skin, it presents nearly the shade of sulphate of copper, but in the process of cutaneous detachment, part of it has been cast off, and it is now devoid of that regularity of outline which it originally had, having various interruptions in the edges and centre.

My inquiries have been particular respecting his health previous and subsequent to this change, but nothing has been elicited proving it other than perfectly good. He admits, however, that when first attacked, his taste was vitiated, giving an unpleasant bitterness to everything he ate; from which fact it may be inferred, that some derangement of the biliary system previously existed.

He is highly pleased with his change of complexion; attaches great importance to it from the notice it gains, and, from the suggestion of some other person, is building largely upon it, hopes of pecuniary profit. When placed under my observation by his father, it was *enjoined upon me to prevent, if possible, his return to a negro.*

The observations immediately following, are from notes without date, though made a few weeks after the above.

The hair upon the surface of the body generally, has become white; especially, that in the eyebrows and eyelashes; white hairs are also numerous on the scalp. His head has been shaved, since which, the change in colour of the hair is very perceptible. There seems to be but little, if any, difference in its length and crispness. He is very positive in his statement that the old hair falls off, and the white comes up anew.

There has been no change in his complexion except a palpable redness or inflammation produced by exposure to the sun. His feet are quite sore from this cause, the cuticle of which cracks and pulls off freely. At the time of my first examination, I clothed him with a toga, in imitation of the mandingo dress, which has protected his body to a great degree against the influence of the sun, and rendered his exposure more comfortable to himself.

A cutaneous affection in the initial stage is perceptible, no marks of which were visible at the preceding examination. He assures me that no trace of it then existed. It seems to be a lichen and is spreading to other parts of the body.

March 15*th*. Three months have now elapsed since my last examination; during all this time he has been clothed to protect him against the unfavourable influence of the sun and atmosphere. Numerous spots of a chestnut brown colour exist on various parts of his body, in diameter from one-sixteenth to one-eighth of an inch. They are unattended with any cuticular elevation, and increasing more in number than in size, run into patches in several places, which are a shade or two darker than the recent spots. They appeared first upon the wrist, where they have become so numerous as to reach i[illegible]atches upwards, to a distance of six inches or more. Their appearance w[illegible]hen on the back of the arm, head and neck successively. A continuous na[illegible]w line of *black* extends from the hair on each temple down to the chee[illegible]h in contrast with the adjacent white skin, presents the aspect of whiskers. Spots and patches of a dark brown appear also on the back. The hands, with the exception of a few spots on their back, are as white as mine. The front of his thighs, his calves and shins, are thickly spotted, and the complexion of the skin generally seems to be a shade or two darker, not the tanning effect of the sun, as we frequently see it upon the white man's skin, but evidently deeper seated. He says that bathing in the sea will so far macerate his skin that he can rub off the cuticle and restore the whiteness.

July 1*st*. Having heard that Tah-too was rapidly turning black, I sent, requesting him to visit me. He arrived to-day, but I am much disappointed in the extent of his colour; the process of changing is much slower than I could have anticipated. The general shade of his skin is somewhat darker; and in many places where were spots only, patches now appear. The patches that existed at my last examination, have considerably increased in size, and are now of a decided black, even more so, it is said by him and others, than was his natural complexion. Spots are now seen scattered over the whole surface, varying in shade, from a light brown to a black, according to their age. In all cases the colour is dull, wholly devoid of that oily and shining appearance usual in all healthy and cleanly negroes. The calves of the legs, the thighs, the abdomen, back of the arms and neck, sides of the forehead, and upper lip, are black, though presenting in various places irregular patches of white.

The "*kroo-mark*" is now better defined, from the fact, I suppose, that the irregularities are not so visible through the darkened skin. It is of a paler hue; that upon his left breast is quite distinct.

With the colour of the skin, that of the hair is restored, though every black patch presents a mixture of black and white. The hair upon the lighter parts is still white. He says the white hairs fall off and the black ones appear as the change in the cuticle advances.

The cutaneous affection before noticed, has greatly extended, giving to the surface of the superior portion of the body the appearance of a general inflammation. This, again, with the spots and patches of returning

colour scattered over the surface, gives to the man a hideous aspect;—that of a generally diseased skin, covered with scabs. This, however, is not so; and what is remarkable, there is a disappearance of the eruption with a return of colour. The white parts only seem to be obnoxious to the disease.

His health during the interim of my examinations has been remarkably good. No other affection, local or general, than the eruption already noticed, has arisen. Indeed, he would not know that he was undergoing the change, were it not that it comes within the vision of himself and others.

The Plate represents the subject as he appeared at this date.

October 4th. Tah-too has just arrived again for examination: about two-thirds of his upper and lower extremities are uniformly *black;* the remaining portion is spotted, except the hands and feet, which, though they have been constantly exposed, have undergone little or no change,—a few small spots only appear upon them. To about the same extent the body has become black—the other parts being spotted; the general complexion of the latter, however, is darker. The face is but little changed from what it was at the last dates, and as exhibited in the sketch. It is remarkable that those parts which have been most exposed have undergone the least change. He has been constantly and well clothed, except his feet and head, and these, as remarked above, with the hands, present about the same appearance as exhibited in the drawing.

The change is still, though very slowly, going on, and in the same manner as represented in my notes at the earliest dates, viz., first in minute spots of a circular form, which increase in number, till, uniting, they form patches with irregular edges, which, again, in their turn increase, till a great portion of a limb or the body becomes continuously black. This is his present appearance after the lapse of more than eighteen months. This change has proceeded only about two-thirds of the required extent. During the process to the present time, he has been remarkably free from sickness, always representing himself in perfect health, and appearing in fine spirits.

ART. II.—*Observations on the Treatment of Remittent Fever as it occurs in the southern parts of Alabama.* By WM. M. BOLING, M. D., of Montgomery.

IN the preceding number of this Journal we gave a description of remittent fever as it occurs in the southern parts of Alabama, and we shall now offer some observations on its treatment, and give the result of our experience in its management.

In the *treatment* of remittent fever there are but few remedies necessary or proper; but to insure success, promptness in their administration, and a well-timed application, are all important; and none should be used but such as are intended to, and capable of fulfilling some important indication. None can be administered, as in many other diseases, with a mere negative effect. The stomach suffers greatly, and its powers must be husbanded; and there can be no remedy administered, which, if it fails to exert a favourable influence over the disease, does not produce a more or less injurious effect on this organ.

I will enumerate the most useful remedies, and the circumstances under which they are indicated, not so much perhaps in the order of their importance, as in the probable order of their administration.

Blood-letting can hardly be considered a remedy of safe and general application, at least, not so much so as some of its advocates assert; while with proper discrimination its use is frequently beneficial, and at times circumstances occur which imperiously demand it. One-half of the cases probably, are better treated without it,—and when the indications for its use are not decided; where the circumstances are such as to create or admit of doubts—the safer course, at least with the inexperienced, as a general rule, will be *not to bleed.* There is such a tendency, in diseases of malarious origin, to sudden, unaccountable and unexpected prostration, or oppression of the vital powers, arising from, or connected in some way with determination to the internal organs, and this condition I have so often known to follow the loss of a quantity of blood altogether inadequate to the production of faintness in non-malarious regions, that it is now only where there is some strong indication for its use, something more than the mere presence of fever, a flushed face, thirst, a moderately full and firm pulse, &c., that I venture to resort to it. In young, robust, and plethoric subjects, who have previously been in good health, where the febrile excitement runs high, and the pulse is full and very firm, we may generally resort to it without danger, and even beneficially, for preserving the integrity of the important organs, from the influence of a too forcible action of the heart. Where there is a determination to the brain, as in comatose remittent, the pulse here being more full and firm than under most other circumstances, it may be resorted to with little apprehension of danger. In that form of comatose remittent, however, in which there are present a quick small pulse, a shrunken state of the surface, and a tendency to coolness of the extremities, its effects are much less decidedly beneficial. Here, without certain precautions, to be hereafter mentioned, the existing bad symptoms are generally aggravated by it; while with these precautions, blood-letting is almost the principal reliance. When I say the principal reliance, however, I allude to such cases only as are in danger of terminating fatally during the existing exacerbation, or of having lesions established, incompatible with a return of the organs to a healthy state. Delirium, when it

occurs in connection with a full and firm pulse, in a young and robust subject, in the earlier exacerbations, may generally be moderated or relieved by blood-letting. Later in the disease, and where the pulse is not full and firm, the loss of blood, to be at all beneficial, must be effected by cupping. In cases where the first or second exacerbation has been neglected or mismanaged, there is at times, at the period of the next exacerbation a state of imperfect reaction. What may be considered the cold stage of the exacerbation continues long. There are present a slight coolness of the extremities; oppressed and difficult respiration; a great feeling of weight about the epigastrium and lower part of the chest; heat of the abdomen and chest; an expression of alarm in the countenance; most distressing efforts to vomit; deadly nausea; and a small, corded and not very frequent pulse, generally not over 120 in the minute. Under such circumstances the lancet may be used with advantage.

I have spoken of the great tendency to sudden collapse, or oppression of the vital powers, in some way connected with those determinations to the internal organs, which so often follow the use of the lancet in malarious fevers. In the situation above described, this tendency is strong, but may be prevented by the following precautions, which are equally applicable to the comatose remittent last spoken of, and to all other cases where this circumstance is to be feared. Before opening a vein, artificial heat should be applied to the extremities—sinapisms to the calves of the legs and wrists; and one large one covering the chest and abdomen, and another the spine. In case of the existence of coma, the feet and legs may be drawn over the foot of the bed and immersed in a deep pail of warm water, in which a considerable quantity of mustard has been infused. They should be permitted to remain in it at least half an hour before the operation, and for a considerable time after it; a full dose of opium given half an hour or three-quarters before the operation, seems to prepare the system for the loss of blood, and, the oppression somewhat relieved by this evacuation, brings about a favourable reaction, soon followed by a free and general perspiration, terminating in a more perfect remission than would otherwise have occurred. Neither of the remedies separately would have accomplished this so effectually.

Contrary to the instructions of most authors who have advised blood-letting in febrile and inflammatory diseases, in those of malarious origin it is important that it should be drawn in a small stream, and with the patient in the recumbent posture. The object is to procure as much blood, with as little shock to the system as possible. Anything like syncope must be avoided, as having a tendency to terminate in that state of collapse above alluded to. To remove oppression, not to reduce the force of the pulse is the aim, and the best evidence that the remedy is exerting a favourable influence, is an increase in its fullness, without any increase in its frequency. Where this latter occurs, the orifice must be immediately closed,

and an interval allowed for it to pass away. In this manner the orifice may have to be closed and reopened two or three times in the course of an hour or two, before the object will be attained. The favourable influence of the remedy is manifested by a relief of the oppression about the epigastrium and chest; a more equable temperature of the surface; less difficulty in respiration, together with the increased fullness of the pulse already mentioned. To be decidedly beneficial in the second form of comatose remittent fever, a considerable quantity of blood must in this manner—as it were—be *coaxed* away. From fifteen to twenty, or thirty ounces should be withdrawn in the course of an hour or two. Even in the first-mentioned form of comatose remittent, in which the pulse is fuller and more firm, the sudden abstraction of a large quantity of blood, for the purpose of making a very decided impression on the pulse, seems to be attended with no benefit, as the coma is not relieved by it, nor does it at all abate till the arrival of the period of the remission; while, setting aside the danger of collapse—less, however, to be dreaded here than in any other variety of remittent—a degree of excitement and reaction proportionate to the degree of depression produced in the pulse, is likely to follow. By abstracting a moderate quantity of blood gradually, thus restraining the force of the heart's action, without producing an approach to syncope, we may in most cases secure the brain against mischief during the existing paroxysm, without incurring the risk of fatal or dangerous collapse, or the disorganizing reaction so apt to follow a more moderate degree of depression. Sixteen or eighteen ounces may be considered a medium quantity to be taken at once from a robust and previously healthy young man, and will rarely have to be repeated. This remark, however, relative to the quantity of blood and a repetition of the bleeding, has reference only to its connection with, and as forming a part of, the treatment to be detailed. In the hands of those who use the lancet as a main dependence, as the principal remedy, I have no doubt that venesection will have to be carried to a greater extent than I have inculcated. In an earlier period of my practice, I used it much more fully than at present. I have partially abandoned it, not from a conviction of its inutility, but from the fact, that a more extended experience has enabled me to supersede it with a much less dangerous remedy. Were I deprived of this, the lancet would again become with me a more important agent than at present, and I would expect to do much good with it, and, perhaps, occasionally mischief, until I became better capable of discriminating the exact circumstances under which it was indicated.

There is scarcely an author, who, in speaking of blood-letting, in directing the mode, does not lay great stress on the necessity of drawing blood in a *full* stream, and in the erect or semi-erect posture. Upon "pleno rivo" and "ad deliquium animi" are the changes ever rung; and yet how precisely are all those directions contrary to what in actual practice is found to be correct, at least so far as an inference can be drawn from the results of

practice in the south. Who ever saw a patient bled to fainting here, who either did not fall into collapse, or whose pulse after reaction, did not immediately become much increased in frequency, and smaller, and so continue till brought under control by the favourable action of other remedies? "But the trifling manner in which it is too often performed, when it is ventured on at all, does more harm than good. Bleed boldly and decisively till the head and præcordia are relieved, or draw no blood whatever." Such is the emphatic language of Dr. James Johnson. If "bold and decisive" bleedings *were* successful, generally, in *relieving the head and præcordia*, no one could cavil at the advice; but, unfortunately, too many for whom this relief has been attempted by such means, have found it only in death; while by an opposite method of bleeding, by bleeding, not *boldly* and *decisively*, but cautiously and carefully, and from a *small* orifice, never carrying it so far as to diminish the *volume* of the pulse, relief may not unfrequently be differently procured. Of course, I do not pretend to say that the *bold* use of the lancet was improper in the hands of those who seem to have found it so beneficial, but simply, that though the character of the disease appears much the same here, as that described by Dr. Johnson and others—advocates of this bold practice—it will not do here.

Local blood-letting is perhaps less practised than it should be; the indications for its use being certainly very decided, according to the current doctrines of the books,—as local determinations are numerous, and apparently the cause, or at least in some way connected with the fatal termination in many cases. The favourable influence of several remedies in use, over the progress of the disease in question, excepting, of course, those cases which occasionally occur, in which death takes place so rapidly that no opportunity is allowed for the action of remedies, is so immediate, so palpable and decided, that the physician soon becomes disgusted with, or doubtful of the efficacy of, any at all tedious or equivocal in its action. Such is certainly the case with local bleeding. It is seldom that any decided or immediate beneficial effect follows its use, though, in all probability, it has a favourable influence over the general progress of the disease. For the relief of coma, delirium, and epigastric tenderness and oppression, I have used it much, but seldom with the effect of producing any marked and immediate benefit. Notwithstanding this, in cases where coma or delirium is present, I use it; for it is hard to get rid of preconceived opinions, especially where no injury follows their practical application; and such is the case here; for, if not relied on to the neglect or exclusion of other remedies, certainly no injury will follow the use of cups to the epigastrium, or to the head or neck, when determinations to these parts take place, unless carried to an unusual extent.

Although the positive curative agency of *Opium* in itself is but moderate, yet it may be used so as to add much to the comfort of the patient, and is very important for the preservation of the stomach in a condition to

retain other remedies,—while, even where inflammatory complications exist, it is but rarely productive of that mischief which Theorists have laid to its charge in such cases. A full dose of morphine, say from a third to half a grain, besides allaying the irritability of the stomach, during the time the system remains under its influence,—if given about, or just before the commencement of the decline of the exacerbation, generally has the effect of producing free perspiration, and a more perfect remission. In that form of the pernicious remittent, denominated *congestive*, it is perhaps more useful than in any other. In none is it more required on account of irritability of the stomach, while the bowels, in a large majority of cases, require its restraining influence. In combination with quinine, it sustains the force and volume of the pulse, and the system against the *depressing* effect of the latter remedy, during the time of its use, in breaking up the *periodicity* of the disease. The solid opium is here preferable to the morphine. To enable the stomach to retain other remedies, the patient has frequently to be kept constantly under its influence until the disease is controlled, and where this is neglected, all other internal remedies have at times to be suspended, until it is again brought about. For this purpose a quarter of a grain of morphine every third or fourth hour, will, at least be necessary. In congestive fever, as a stimulant, opium I have said, is preferable to morphine; but, where the object is to arrest vomiting alone, the latter is the most suitable article.

To obtain its full benefit, some tact is requisite in its administration, and I have known it continued in repeated doses some time without any favourable effect, merely because each portion happened to be given a few minutes too soon, or too late. In cases strongly demanding its use on account of irritability of the stomach, there is, perhaps, rarely an interval of more than half an hour or three-quarters between the spells of vomiting. Here a full dose of sulphate of morphine in solution, in a teaspoonful of water, given *immediately* after the patient has vomited, will probably arrest the vomiting for the time; or, should this be rejected, it will at least have produced sufficient influence to insure the retention of a second, if administered immediately after its rejection. After this, the other remedies may be resumed, but the morphine should be repeated every third or fourth hour. The morphine is much less offensive to the smell and taste than laudanum, and in solution much more prompt in its action than solid opium.

In the *insidious* remittent spoken of as occurring more frequently in children, with severe convulsions, from the intestinal canal being loaded with indigestible matters, and the irritant action of these being also frequently augmented by purgatives prescribed before the arrival of the physician, the almost only hope for the time is in opium. The convulsions can only be controlled by arresting the motions of the intestines, and allaying or counteracting the irritation produced by their contents. Every rolling motion of the intestines is followed by a convulsion—and every con-

vulsion is probably attended by an evacuation. Quiet the intestines for the time being, if possible; guard against a second exacerbation; and during the remission, have the patient better prepared for it, should it come, by having the intestines evacuated at this time. Where the convulsions or stupor prevents the patient from swallowing, the opiate may be given in an enema. Under some circumstances, a patient who would be benefited by purging during the remission, would be killed by it in the exacerbation. It must have been from seeing the effect produced by purgatives during the exacerbations, more especially, that caused Lempriere (*Diseases of Jamaica*) to observe, that by the use of active purgatives, "a train of distressing nervous affections will be induced, that shall, in many instances, place the patient in the greatest danger."

As regards purgatives—they are highly beneficial in the commencement of an attack of simple remittent fever, used to an extent sufficient merely for the discharge of the fecal matters contained in the intestinal canal. After the operation of a moderately brisk purgative at first for this purpose, a very slight action should be kept up, where there is a tendency to constipation of the bowels, merely for the purpose of carrying off the secretions, not to excite them; at least *not actively to excite secretion from the intestinal mucous membrane.* In some cases, however, the bowels having been once freely evacuated, purgatives will be no farther needed, as one or two evacuations in the twenty-four hours will take place spontaneously; and this is amply sufficient. In this partial exclusion of purgatives, however, in the further treatment of the disease, the moderate use of calomel, given, as will be explained hereafter, not with special reference to its action as a purgative, is not considered. Used to the extent above specified, it must be admitted that purgatives are beneficial; yet carried much beyond this, they rarely fail to do mischief.

Although I do not pretend to say that gastro-enteritis is the cause of the disease, or rather that the fever is a mere gastro-enteritis, it is nevertheless present in all, or nearly all; and in a large proportion of cases, is the cause of many of the most prominent and distressing symptoms. The disposition to inflammation of the intestinal canal, where it perhaps may not at first exist, and the slight causes necessary to increase it to a dangerous extent, where it may have been at first but slight, render the utmost caution necessary in the administration of purgatives. It is an erroneous impression among physicians who have not practised in the south, that more powerful and active purgatives are requisite here; and one productive of much mischief, as causing the northern practitioner settling in the south to double the size of his purgative dose, when its reduction one-half would probably be efficient, and certainly more safe. On the contrary, the bowels are extremely susceptible to the action of purgatives, which, without great caution, are apt to produce much irritation and hypercatharsis.

In combination with the first dose of opium or morphine, ten or fifteen

grains of calomel may be given, not with the expectation of any immediate action, as the opium will probably prevent this. It may be supposed, however, to pass slowly through the superior portion of the intestinal canal before the effect of the opium has subsided, and by the commencement of the decline of the exacerbation, at which time the irritability of the stomach will have abated a little, a small dose of some other purgative may be given to quicken its action. For this purpose I have been in the habit of using castor oil, Epsom salts, or compound extract of colocynth, combined with blue mass; say to an adult, from ten to twelve grains of the former with about five of the latter, made into four or five pills. With white patients there is such a repugnance to the castor oil, that few are willing to take it, and but few can retain it after doing so. On the contrary, with negroes, in whom, as has been before observed, there is much less irritability of the stomach—it is willingly swallowed and more readily retained. Many prefer medicine in the form of pill, and for such I have found no better combination than the compound extract of colocynth with blue mass. I prefer, however, the Epsom salts—where there is no settled repugnance to it—to either of the other articles. In the lectures of Professor Revere, while a student of medicine, I first heard the use of this article strongly advocated as a purgative in remittent fever. Its advantages, if my memory is not at fault, as enumerated by him, were, the certainty but mildness of its operation: while, by dissolving it in a small quantity of water, and withholding other drinks for some time before its administration, it was generally taken willingly, sometimes greedily, for the purpose of quenching the excessive thirst. In my earlier attempts with this article, I was exceedingly disappointed, as its action was often excessive, producing frequent and copious watery discharges, debility, and excessive irritation of the intestinal canal. For a while, I abandoned it altogether, but observing the same tendency in other purgatives, to produce hypercatharsis when prescribed in their recognized doses, I resumed its use again, and by diminishing the dose in proportion to the increased susceptibility of the intestinal canal, found it fully to answer my expectations, and to accomplish the desired object better than anything else. The dose is from a drachm and a half to two drachms. Where, however, the irritability of the stomach is very great, and continues after the commencement of the decline of the exacerbation, so as to render it probable that no purgative could be retained, as is frequently the case, to aid the action of the calomel, enemata may be administered with benefit. For this purpose I think I have observed a better effect from a weak solution of muriate of soda, than from anything else. It is very prompt in evacuating the lower part of the intestinal canal, and quickly extends its influence along the alimentary tract, causing a propulsion of its contents from the stomach and upper portion of the small intestines to the rectum. The evacuating and revulsive action, however, of many other substances used as enemata, is equally as prompt

and decided, as of this, and yet, it seems to possess one advantage, for which I can offer no explanation, over everything else that I have used for the purpose,—that is, of assisting very materially, and in a more palpable manner, in allaying the irritability of the stomach. If I am not mistaken, Dr. Dewees has recommended it for this purpose, in some of the acute febrile affections of children attended with vomiting. During the whole progress of the case, where it is necessary to interfere for the purpose of procuring evacuations, an occasional saline enema answers the purpose well, without the additional irritation of the stomach produced by purgatives administered by the mouth.

In the insidious remittent, which I have spoken of in children, attended so often with convulsions, from a loaded state of the bowels with undigested matters, purgatives, though extremely dangerous and injurious during the exacerbation, are nevertheless of much value during the remission, nor should a free evacuation of the bowels ever be neglected at this time, as without this precaution, should another evacuation occur, the convulsions come with it, and almost invariably prove fatal. Sometimes, however, the remission is so imperfect, that a very slight abatement only takes place in the convulsions, without any lengthened interval between them. In this case, purgatives must be avoided even during the remission, until the febrile excitement, and the convulsions are subdued, or very decidedly mitigated. On the contrary, in what may be called simple remittent in children, at least a much less dangerous and violent form of disease, but attended with convulsions, in which this distension of the bowels with undigested food does not exist—the evacuations being bilious and fecal, the convulsions, too, not being attended with the rumbling noise in the bowels—the action of a mild purgative, even during the exacerbation, does not augment the convulsions, and seldom fails to be followed by immediate relief. The explanation, perhaps, in part, consists in this—that the natural feces being less irritating to the bowels than lumps of undigested food—which here may be looked upon as foreign matters,—their movement along the sensitive mucous membrane, produced by the purgative, would consequently be less injurious. As a purgative in either case, a few grains of calomel followed by repeated mild, but copious enemata, will be proper.

In the first described variety of comatose remittent, a rather more free use of purgatives may be admitted, than in any other form of remittent fever, while in the one succeeding, in which the symptoms indicate that the abdominal viscera share with the brain the onus of the disease, they should be entirely prohibited. As in the last, so in that form of pernicious fever, known among us as congestive fever, purgatives are extremely mischievous, and should be entirely avoided until the febrile excitement and irritation, or inflammation, or congestion, or whatever it may be denominated pathologically, of the intestinal canal, are subdued by other remedies: that is, until the disease is almost entirely removed; when a cathartic may

be used with safety and advantage. Something like the same rule obtains here as in the insidious remittents spoken of above. Senac undoubtedly had this modification in view when he says—"when the stomach and intestines receive the whole force of the disease, the practitioner must decline the use of purgatives," and "It would be no less improper to administer purgatives in cases where there is prostration of the vital principle, or where, during the cold fit, the heat has retreated from the surface and extremities to the internal parts of the body." The same excellent author has also observed, in directing the administration of a cathartic, "lenient, I say, and such as may but gently excite the peristaltic motions of the intestines; for if an active and highly stimulant purgative be given, such commotion may be excited as will greatly augment the febrile heat;" and what practitioner in the south capable of distinguishing between the natural progress of disease, and the poisonous effects of medicines, has not frequently witnessed the same. The young practitioner, on witnessing the beneficial effect of the evacuation of the fecal matters, as formerly suggested, is strongly tempted to carry the purgative action further, but mischief never fails to follow. The purgative is merely beneficial, because its temporary irritation is less injurious than the permanent irritation kept up by the retention of fecal matters. All other remedies that it may be necessary to prescribe, of course, I mean in those cases in which purgatives are admissible, seem to act much more favourably, after the evacuation of the intestines. But is it not so in all other diseases? Is there any remedy for any disease, no matter how general its application may be in that disease, that does not frequently require a modification of the system, a course preparatory for its administration, by other remedies, to admit of its peculiar effect being readily and favourably produced?

Counter-irritants.—Among the simple and less important remedies, there is nothing gives such immediate and decided relief to any of the distressing symptoms, as the application of a large sinapism to the abdomen and chest gives to the nausea and vomiting, the feeling of distress and anxiety about the præcordia, and the sighing and oppressed respiration. Threefold the relief to the above symptoms will be produced in the application for five minutes, of a sinapism, to that obtained by an hour's cupping. The sinapism may be repeated again and again, as the effect of one application subsides. Once or twice, however, during the height of each exacerbation, will generally be sufficient. Where the retching and vomiting, and the difficulty of retaining medicine are extreme, it may be advisable to apply one for a few minutes before the administration of each dose. In some cases I have thought that the efficacy of the remedy was enhanced by mixing with the mustard a few drops of the oil of peppermint. In domestic practice, for this purpose, much reliance is placed in poultices made by stewing peppermint in brandy.

In obstinate and rather protracted cases, after the repeated application of

the sinapism, it seems to lose its influence over the above symptoms; the pathological condition producing them, seemingly, having become too deeply rooted for its action. Under such circumstances, a blister will seem to exert a controlling influence, though in the earlier periods of the disease, the benefit derived from one appears no greater than that from the sinapism. In the comatose cases, sinapisms to the extremities are frequently beneficial, and the same may be said of their application to the spine and abdomen in the cases attended with convulsions in children. In the second described variety of comatose remittent, a blister, covering nearly the whole head and extending down the back of the neck, may be useful, where the patient is not *in extremis* before it has time to draw. It is, however, in *congestive fever* that counter-irritants are most in requisition. Sinapisms to the spine and abdomen, and to the extremities, shifted about frequently from place to place, frictions with dry mustard, and the application of artificial heat, by bottles filled with hot water, should be sedulously applied. But oh, how difficult a thing it is to warm one of those clammy hands! The beneficial effect of blisters is less marked than that of agents more prompt in their operation. Sometimes Granville's lotion has appeared useful. Nothing, however, of the kind has appeared of so much service as *continued friction with dry mustard.*

Everything relative to the use of counter-irritants in the different forms of pernicious fever, is equally applicable to the advanced stages of protracted cases of the less malignant forms, where they will frequently be found indicated by the same symptoms, but less rapid in their progress.

Stimulants.—There are very few circumstances under which this class of remedies is beneficial in remittent fever. The use of opium, as already adverted to in congestive fever, in combination with quinine, to prevent or counteract the sedative action of the latter, while it is brought to bear against the *periodicity* of the disease, is almost the only circumstance under which I have seen any decided benefit from them. Occasionally, perhaps, a weak infusion of capsicum, with a small quantity of the aromatic spirit of ammonia, where there is extreme depression, may be administered in aid of the opium. Generally, however, the stomach is too irritable for this, and even where it is moderately retentive, nothing but the most absolute necessity should tempt to the administration of anything which either from its bulk or peculiar properties, may be at all calculated to nauseate. In those cases where "congestion" or sudden prostration has been produced by the lancet, stimulants are much more likely to be beneficial than in those where the same condition comes on in the beginning of the disease spontaneously, or is the effect of drastic purgatives.

In accordance with a custom universally prevalent, I believe, in the advanced stages of protracted cases, verging to a fatal termination, with a weak fluttering pulse, great debility, &c., I have been in the habit of resorting to the use of stimulants, but rarely with any good effect. When

that stage of the disease arrives, in which stimulants are prescribed, and relied on as the principal means of cure, the patient's condition is desperate indeed, and the writing of a prescription for an ammonia julep, or any other stimulating compound, is about equivalent to signing his death-warrant. Our druggists are in the habit of predicting the death of the patients for whom they prepare such prescriptions. The desire to neglect nothing that may give patients a possible chance for life, still impels to the use of ammonia, brandy, cayenne, and wine-whey, and still they die.

Calomel.—There are few articles in the materia medica respecting which so much diversity of opinion has been expressed as in relation to the effects of calomel upon the class of fevers in question; its advocates claiming for it advantages superior to those claimed for almost any other therapeutic agent. in the treatment of any acute disease; while by others it has been condemned as eminently mischievous. Much of this arose from a kind of partisan feeling; its opponents, in many instances, being the avowed advocates of other remedies, or other systems of treatment, for which they claimed a superiority; each was blind to the good derivable from his opponent's remedies, and equally so to the imperfections of his own. Few thought of a combination of the two, or where this was adopted, still, the patients were always cured by the favourite remedy; the mischief, if any, by the one in less repute.

Though many of the discussions relative to calomel were in regard to its effects in yellow fever, all that was said of it was considered by a majority of writers as equally applicable to remittent fever, and so has been applied by almost all southern and tropical practitioners; these diseases having been considered by many, then, as at present, mere modifications of the same affection. There can scarcely, I think, at the present day, be a doubt of the benefit to be derived from the judicious use of calomel in remittent fever, though it certainly falls far short of that once claimed for it; all, while familiar with its use, must admit that its profuse administration in the south has been the cause of much mischief. The circumstances under which Rush, Chisholm, Johnson, and others, whose opinions have had so much influence in disseminating its use, administered it with so much success, must have been different; the disposition of the intestinal canal to take on inflammatory action must have been less; or, what is still more probable, their success may have been greater than that by any other treatment of the day, while it was probably less than would have followed a more sparing use of the remedy. This may be admitted without conceding that the opponents of this measure had not in their hands a remedy capable of a still more beneficial application, but of which many still more imperfectly understood the proper method of administration. It is no slight evidence against the utility of the *large* and frequently repeated doses of calomel, as recommended by Rush and Chisholm, that Dr. Trotter, an early advocate of the practice, subsequently condemned it. In the first

volume of his Medicina Nautica, he uses this language:—"Some still persist in the stimulant plan, after all the evidence of those great physicians, which we have quoted, has been brought against it. This is adding horror to death." "Whoever attempts to controvert the practice of Dr. Rush, must bring unequivocal arguments indeed to support his method of cure." Yet in the second volume of the same work, published several years after the first, we find him expressing opinions diametrically opposite. "On reviewing the practice of different medical gentlemen in yellow fever, we are led to think, that the treatment recommended by Doctor Moseley has been incautiously resigned or laid aside for the *unaccountable administration of immense doses of mercurial preparations.*"

One main object with those who have relied most upon calomel, seems to have been the production of ptyalism,—looking upon their patients as perfectly safe, this state being once induced,—the cure being, in their opinion, the result of the ptyalism. On the contrary, the opponents of this practice took a different view of the matter. In the language of Bancroft—there is room to suspect, at least, if not to conclude, "that where persons have recovered from the yellow fever, after having been salivated, their recovery was not occasioned by the salivation, but was the consequence of such a condition of the powers of life, and of the functions connected therewith, as induced a mitigation of the disorder, for the same reason, and perhaps, cæteris paribus, in the same degree, as it favoured the operation of mercury upon such persons; and therefore, that although recovery has not unfrequently followed or accompanied salivation, the latter was not a cause of the former." We may readily, I think, admit, without at all doubting the curative action of the calomel under the circumstances spoken of, that the salivation may not have been the cause of the recovery;—nay, even further, that the recovery may have merely admitted of the salivation. Still, it does not follow that the recovery was not produced by the calomel, which, itself, may have induced a state of the system compatible with its salivant action: the latter not the cause of the cure, but merely an evidence of it, a coincident effect of the remedy. The action of calomel upon the salivary glands comes more immediately under our cognizance, and is, perhaps, the most prominent of its constitutional effects; but still, in seeking to explain the modus operandi of its curative action, if it is necessary in doing so to resort to some palpable effect of the remedy, is not its influence over all the secretory organs sufficiently manifest? May not its effects upon the secretions of the intestinal canal, upon the kidney, in fact, upon each secretory apparatus, be adduced as probably more explanatory of its curative influence than that upon the salivary glands? It may be said that the restoration of the perspiration; the increased flow, and more healthy character of the urine; the improved appearance of the intestinal excretions; the restoration of the secretion of the liver when the

function of this organ has been suspended or perverted,—are, as well as the salivation, the consequences, not the cause of the recovery. It is probable. The essence of the disease—inflammation, engorgement, congestion, nervous disturbance, or something else. in another part of the system,—by which these organs may have been embarrassed sympathetically, may have been removed by the calomel, and they thereby permitted to resume their healthy action. In that case, what would otherwise appear primary, may be but secondary links in the chain, and the mercury not less, the curative agent.

There have been many facts and ingenious arguments brought forward by the anti-mercurialists in support of their views. For instance, it occasionally happens that patients die while fully under the salivant influence of mercury. A more common occurrence, is the induction of slight ptyalism during a temporary mitigation in the force of the disease, and its disappearance, permanently or temporarily, as the case may afterwards terminate favourably or otherwise, during any increase in the violence of the symptoms. As an example of this, incipient ptyalism, occurring during a remission, not unfrequently disappears entirely during the next exacerbation, and may, or may not return during the following remission, as the disease takes a favourable or unfavourable turn; or, as it is judiciously or injudiciously treated from that time. Cases again are adduced where mercury, having been given fully in an early period of the disease without any improvement, late in the disease, and long after a suspension of its administration, as recovery took place under the use, or at least during the administration of other remedies, salivation has simultaneously or consecutively supervened. In what would seem to be rather an unfortunate selection of cases by Chisholm, to illustrate his mercurial treatment, cases of this kind occur. In one case, that of Thomas Smith, the treatment was principally with mercurials from the time of his admission, September 9th, till the 16th, when it was omitted, and a different course instituted, consisting principally of the administration, by the mouth and in enemata, of the Peruvian bark, which was persevered in till convalescence. The progress of the case was vacillating; but on the morning of the 25th, a slight abatement in the frequency of the pulse was noticed, and on the evening of the same day, he "for the first time complained of ptyalitic symptoms." Facts of this kind may seem to carry weight with them, but they can scarcely be considered conclusive. We can conceive it possible that, in some cases, salivation may take place without the beneficial action of the remedy on the system generally—that a state may exist not incompatible with its salivant action, but in which its curative influence cannot be exerted, though we know that, as a general rule, this is not the case. Nor is there anything inconsistent either with our knowledge of the action of other remedies, that the peculiar or specific action of calomel should be partially manifested, under circumstances where its complete

influence was impossible. In regard to the case which I have cited above, although it does not prove or sustain favourably, the views of the author from whom it is abridged, yet it cannot be said really to prove anything adverse to the favourable opinion he entertained of the powers of calomel. No remedy can be expected to succeed under all circumstances, nor should it be condemned where it has failed to do good, or has appeared to do mischief, until one and the other are ascertained not to be in consequence of its improper combination with other remedies calculated to counteract or prevent its curative influence, or from its injudicious continuance after it has done all the good it is capable of. After all, many medical disputes have been rather as to the comparative, than the positive utility of certain remedies. We find, upon examination, that Chisholm, one of the first and most determined of the mercurialists, freely and perseveringly used the Peruvian bark—while Bancroft, one of the most ingenious and decided opponents of the mercurial practice, acknowledged the utility of calomel *as a purgative;* but from the small quantities, repeated, in which he was willing to admit it, something more than its mere purgative action must have frequently been obtained by him. To secure all the good, without any of the deleterious effects of calomel in remittent fever, requires much caution and a much more sparing use than is generally made of it.

Although the curative action of calomel is frequently procured without the induction of ptyalism,—and could we clearly discriminate the exact stopping point, might always be procured without this,—still, its administration, so conducted as to favour the development of this state, is the most certain course also of procuring its favourable action upon the system generally, always stopping short of salivation when possible. In many cases we can do this, for its beneficial effects upon the disease are early enough observable to prevent it; but in other cases, salivation takes place as early as any decided mitigation of the disease can be perceived. Inflammation of the stomach and bowels, and a strong tendency to an aggravation of this condition from apparently slight causes, are prominent features in the disease in question. To procure the favourable influence of the remedy, its administration must be so conducted as not to augment this state, but rather to mitigate it. Nevertheless, under the mistaken notion that the larger the doses and the more frequently repeated, the sooner will its effects be developed, a state is often induced, by the excessive quantity of the remedy itself, totally incompatible with its curative action.

The bowels once freely evacuated, small doses, say three or four grains, every fourth or sixth hour, in combination with the opium or morphine, which in nearly every case it is necessary to administer, as has already been observed, on account of the irritable state of the stomach, will, in a majority of cases, bring the system much sooner under its influence than larger or more frequently repeated doses. Authors, in attempting to account for this seeming analogy, have explained it by supposing that, when

large and frequently repeated doses have failed to produce constitutional effects, where smaller ones have done so under apparently similar circumstances, the absorbents, in the former instance, were indisposed to receive it; but without noticing the fact that the irritation produced by the larger quantity of the medicine was the cause of this indisposition, admitting one to have existed, on the part of the absorbents to take it up. A gentle action of calomel upon the bowels, sufficient to produce one, or, at most, two consistent evacuations in the twenty-four hours, instead of retarding, favours its constitutional effects. Indeed, occasionally a more brisk action for a short time favours the same end, by removing collections of fecal matters which, by the irritation they keep up in the intestinal canal, produce a state of the system unfavourable to its influence. To produce this effect, if it cannot be accomplished by enemata, an additional dose or two may be necessary, and justifiable on the grounds that the *temporary* irritation produced by it would probably be less hurtful than the permanent irritation kept up by such collections. In combination with opium, besides the necessity for the latter, on account of the irritable state of the stomach, it is advantageous also by enabling us to administer more of it without augmenting the irritation of the intestinal canal, and not in all cases, as some suppose, by retaining it longer in the system. Moderate doses of calomel combined with opium, will operate on the bowels, producing at the same time its constitutional influence, under circumstances in which larger doses alone would fail to do either. A moderate degree of inflammation in a mucous membrane may not be incompatible with secretion from the same, while a higher degree may be totally so. This is exemplified in what takes place in the different stages or degrees of bronchitis. Doctor James Johnson says, that a twenty grain dose of calomel will act as a sedative, and will rather constipate than purge. The manner of its astringent action has probably been already explained. There is more difficulty in explaining the former. That irritability of the stomach, under certain circumstances, will be moderated by it indirectly, by its removing irritating matters from the upper portion of the intestinal canal, can readily be conceived. I have never seen it produce any direct and immediate sedative effect. On the contrary, I have always had to regret the tendency of its primary action to increase the irritability of the stomach, except under circumstances when it may have been supposed to act as above suggested; the increased irritation then, being only less than that produced by the cause it removed. This disadvantage, however, it partakes with all other remedies used—opium alone excepted. Even a glass of cold water will, after having rested quietly on the stomach for a while, seem, to a limited extent, to have the same effect. Its general effects once manifested upon the system, a subsidence of the irritability of the stomach immediately takes place. Sometimes—and this proves incontestably the tendency of large doses to produce and keep up a state of the system incompatible with the favoura-

ble operation of the remedy,—under the moderate use of calomel, the patient may be doing well, convalescence perhaps commenced, and may be incipient ptyalism; which state of things in a few hours may be altogether changed by the injudicious administration of one augmented dose. Nor is it necessary that the latter should purge; the renewed irritation of the intestinal canal produced by it being alone sufficient to destroy all the benefits before derived from its more judicious use, whether purgation follow or not.

Of this "sedative" action on the stomach, by which, I suppose, is meant, a power to allay the irritability of the organ, I have many times heard physicians speak as a common occurrence in their practice. There is, in the treatment of remittent fevers, a great liability on the part of the physician to be deceived as to the effect of remedies. Many do not observe strictly the periods of exacerbation and remission, and their patients are "better" or "worse" just as their visits happen to occur during the one or the other. So with remedies; a certain article is prescribed shortly before an exacerbation, and at the next visit it is pronounced to have done mischief; another happens to be given just at the commencement of a remission, and, at the next visit, its effects are observed to have been admirable. In some of the instances in which this sedative action of calomel has been observed, by inquiry, I have found that its administration had been timed, fortunately for the development of this one of its effects, about the commencement of the remission; at which time, of course, there is a spontaneous abatement in the nausea and vomiting, as well as in all the other troublesome symptoms.

In a large majority of cases, where the treatment is properly conducted, convalescence will be established before any of the constitutional effects of mercury are developed; that is, where the calomel is given to assist and advance the cure, but not as a principal dependence. Where, however, it is prescribed as a main reliance, and is the principal agent in effecting the cure, it will be otherwise. Its peculiar action, if not upon the salivary glands, will be manifest upon some of the secernents about this time. Although many cases are promptly and readily cured by the action of other remedies, and before the calomel has had time to produce any other effect than that merely of evacuating the intestinal canal, still, in cases presenting any degree of severity, it is prudent so to administer what is given, as to favour most the development of its constitutional effect, with the object of ultimately profiting by it should the case prove obstinate or protracted,—and this can the more safely and consistently be done, because as a laxative it possesses advantages over most other articles, and because, so administered as to produce that degree of action on the intestinal canal which most favours the advancement of the cure by other remedies, will most certainly in the end secure its constitutional effects. I confess that in my own practice mercurials are less used than the confidence here expressed of their

utility might imply. This is not because, by the judicious use of calomel, a great degree of success may not be secured, but because, as a principal reliance, the sulphate of quinine is preferable, as still more certainly controlling the disease; and so promptly, in many instances, that time is not allowed for the calomel to play more than a subordinate part.

In simple remittent fever, given as above directed, all the good it is capable of producing may readily be obtained. However, in those cases of the disease to which the physician is called late, after a free use of purgatives in the earlier part of the attack by the friends, the utmost caution must be observed in the administration of calomel. The same, of course, holds good in protracted cases where purgatives, calomel among the rest, have been used to any considerable extent by the physician himself. In such cases, such an irritable state of the intestines will frequently be found to exist, that even in small doses it is apt to produce pain, griping, and thin serous or bloody discharges. If admissible at all here, it must be given in very small portions, not over one or two grains, for instance, every five or six hours, well guarded with opium. There seems to be a necessity, indeed, that the quantity of calomel should be diminished in a ratio with the increased irritation of the intestinal canal, while the opium, as a general rule, should be increased in the same proportion. These remarks are strictly applicable to its use in congestive fever, where, indeed, in many instances, so much intestinal irritation exists, that even the large quantity of opium, necessary as a stimulant, is insufficient to prevent the smallest doses of calomel from increasing the number of evacuations, and consequently doing mischief. In the first-mentioned variety of the comatose remittent, it may with safety be administered more liberally, and its purgative action more freely permitted than in any other form of the disease. In the second form spoken of, the same rules should govern its administration as in the ordinary form of congestive fever, but with a more sparing administration of opium. One thing should not be forgotten in the administration of calomel,—the proper stopping point. Whenever a decided mitigation of the disease takes place under its action, in a majority of instances, the physician would do well to suspend it, or by all means avoid an augmentation of the dose, on the grounds that as a little is proving beneficial, the cure may be expedited by giving more. By such a course as I have already observed, the remedy itself may destroy the good it has already done. When, after the administration of calomel for some time, dark, nearly black evacuations, having a greenish tinge sometimes, about the consistence of the thickest molasses, take place, those physicians who are most attached to it, most familiar with its use, and who use it here with most success, always relax in its administration or suspend it altogether, gently soliciting a sufficient action of the bowels to carry off the intestinal secretions by the use of enemata. Here it will be found already to have effected all the good it is capable of, and may, if carried further, do mischief. These evacua-

tions are looked upon, not as the cause of the cure, but as evidence of the favourable action of the remedy. At the same time I will observe that operations of the character just described are not in all cases the product of calomel, as I have seen them when but the smallest quantity of that article has been administered, and that, too, long before the appearance, too long reasonably to admit its agency. Under every circumstance of their production, they may generally be considered as indicative of a favourable change.

Quinine is decidedly the most important and generally useful therapeutic agent in the treatment of the various forms of remittent fever.

Notwithstanding the length of time since the discovery of the Peruvian bark, and the conspicuous position it has always held in the materia medica, the most erroneous opinions have generally been entertained of its properties, and the circumstances under which its use was indicated; although, in looking into the authors of past days, we occasionally discover one whose practical experience with the article led to very correct views, but too often these ceased with his own practice, or were confined within a small circle of partizans. Looked upon as highly stimulant and tonic, it was confidently prescribed where such remedies were useful, or where at least they were considered so by the prescriber. "Alexipharmic," "antiseptic," and "anti-putrescent," were also among the qualities with which it was endowed, and consequently, where as such it was prescribed, it was generally in combination with articles calculated to assist in carrying out the intention for which it was given, and, of course, such as would, in many cases, counteract the good effect which might have been obtained from the bark alone, admitting, as I have supposed, its action to be of an opposite character. Wine, alcohol, hot and cordial infusions and decoctions of different kinds, were among the principal articles with which it was combined; while to these, others added the richest dishes of animal food, and others, again, to fulfil effectually other objects for which it was given, added piles of heating bed-clothes, and a hot and suffocating atmosphere. Taking these things into consideration, together with the quantity of the medicine, even when given alone, necessary to produce its peculiar effects, and its extremely disagreeable taste, from whence must necessarily have arisen a great repugnance to it on the part of the sick, it must be acknowledged that no ordinary article of the materia medica could have maintained so high a stand, tottering and retrograding though at times it was. At one time it was high in public favour, with but few to oppose it; at another, it declined from its position, with but few to maintain its usefulness, according as it happened to have ingenious advocates, whose doctrines for the time predominated, or opponents, subtile in argument, whose standing and reputation gave their opinions influence. To show the length to which arguments for and against it have been carried, it may be observed that there is scarcely a symptom of the class of diseases in which it seems more

peculiarly beneficial, that has not been attributed to it, and admitted by some who are not unfriendly to it, but willing to admit its use under certain restrictions; and hardly, in many instances, denied by its stanch supporters. Thus Pringle (*Diseases of the Army*, &c.), "having often found the breathing affected, or a *lurking fever remain* after its use, became at last doubtful whether it were not better to attempt the cure without it, or, at least, to delay, till, in the convalescent state, the patient required it only as a strengthener." By Mosely (*Tropical Diseases*), we are told that it "fixes immovable obstructions in the brain," "increases those obstructions in the abdominal viscera, which almost always follow severe disorders in hot climates, and often converts them into incurable scirrhi and dropsies," and yet these men were not among those who found it most injurious. On the contrary, they both used it freely, and with considerable advantage. By others, enlargement of the spleen; the "obstructions in the abdominal viscera," alluded to by Mosely; the dropsical affections consequent on these; the tumid abdomen, and bloated countenance—yellow or pale, cachectic and exsanguious—all the consequences of the slow and latent action of malaria, or of imperfectly cured malarious fevers, were attributed to the Peruvian bark. Even Senac, who seems to have understood its virtues better than many of his predecessors, admits its injurious effects in many instances, and says, (*On Fevers*, translated by Caldwell,) "it frequently attacks even the spleen itself. That viscus, as we have already mentioned, becomes enlarged, and inclines to suppuration. But I have learnt from experience, that this affection is to be attributed to the Peruvian bark as frequently as to the fever itself." Again, "we see many persons who, after the removal of the fever, languish under a pale, tumid, yellow countenance, an enlarged abdomen, and anasarca of the legs and other parts of the system." "We meet with others who experience certain anxieties or uneasinesses at those times at which the paroxysms had usually occurred," &c. Now all these, instead of being produced by the Peruvian bark, are but parts of the disease, or supervene in consequence of an imperfect cure from an inefficient administration of the remedy. These were admitted, I say, by Senac to be produced by the Peruvian bark, but most likely on the authority of others; the "experience" by which he learned it being, in all probability, not a *personal* one, for he elsewhere speaks of it as a "*divine discovery*," and says,—"*So efficacious and innocent is it, that among all the sick to whom I have ever prescribed it, I have heard no well-founded complaints respecting it.*" On the other side, how great must have been the confidence entertained of its medicinal powers by some, may be inferred from what Morton tells us of the physicians of his day arraying themselves in opposition to its introduction into general practice, for fear that it would destroy the profession of medicine, as "persons might then enjoy health without the aid of the doctor." Cleghorn (*Diseases of Minorca*), says, "the more experience I had of the bark, the more I was convinced of its

innocency and efficacy. But the prejudices against this medicine which I had early imbibed from some of the most approved authors, made me for a long time use it with too much diffidence," and, in regard to the frequent relapses which, in his day, were attributed to the Peruvian bark, as by some at the present day to the quinine, he says, "that a delay in giving the bark, seems frequently to have produced the effect ascribed to its having been used too early." He also acknowledges that the increase in the severity of all the symptoms, which so frequently takes place with each exacerbation, when uncontrolled by medicine, he at one time attributed erroneously to the early exhibition of the bark. The southern physician of ten years back, when "*Johnson on Tropical Climates*" was with many the only practical guide, may be surprised on being reminded that in 1793, before the authority of Rush and Chisholm had rendered the use of calomel so popular, and had given a proportionate backset to the Peruvian bark, in an invoice of medicine for the half yearly supply of a regiment in the Island of Jamaica, the proportion of the two articles was, as four ounces of the former to sixty-five pounds of the latter.

Although the discovery of the quinine, the most important medicinal ingredient of the Peruvian bark, gives the physician of the present day great advantages over those of former times,—who were compelled to load the stomachs of their patients with ounces of a disagreeable and disgusting article for the purpose of procuring the medicinal effect of a few grains,—still, it is questionable whether the quinine has ever been so highly esteemed as the crude bark in its time, or its real properties better understood by medical authors of the present day, than were those of the bark by a few, more than a century ago. The discovery and introduction of quinine into practice, occurring after the general introduction of calomel into use, in the treatment of the diseases of miasmatic regions, during the time of its high popularity, and a comparison of the success obtained by the latter, with that by most former systems of treatment, on account of the many disadvantageous circumstances under which the Peruvian bark was administered, being rather in its favour, account for this. The views entertained in regard to the stimulant action of the bark, still continued to be promulgated of the quinine, although nothing could be more erroneous, while the word *inflammatory*, in many instances, replacing *putridity*, *putrescency*, *malignancy*, &c., still further operated against it, and prevented its introduction into use. For who would think of giving a tonic or a powerful stimulant in the commencement of an acute inflammatory disease?

Among other causes, too, "*la Doctrine Physiologique*" has had its agency in retarding the introduction of quinine into more general use. Broussais considered its administration even in intermittent fever improper in any case in which the intermissions were not perfect, or when any local irritation existed during the period of the intermission. Lancisi, Torti, and Morton had adopted opinions of a different character, which were opposed

by Baglivi, and the authority of the latter is sustained by Broussais. How much credit the opinions of Baglivi, in regard to the Peruvian bark, were entitled to, may be judged of by the following passage quoted from him, and translated by Broussais himself. "Quant à l'ecorce du quinquina, il n'est pas prudent de s'y fier, a moins qu'elle n'ait été cueillie en Amerique, sous le sign du lion, et sur des arbres tournes vers le midi." The opinions of Morton, Lancisi, Werlhof, Torti, Senac and others, based upon the most extensive practical experience, the most perfect familiarity with the disease, and its remedy, had to yield to a cherished theory. It is much to be regretted, for the sake of humanity, that the practical skill of the physician is not always in proportion to the attractiveness of his style as an author. The opinions of Broussais, relative to its action under other circumstances, were opposed to the authors just named, and were also, so far, erroneous. "Une foule de personnes, dont les viscères de l'abdomen sont déjà travaillés par une phlegmasie ou une subinflammation chronique, s'exposent aux causes de l'intermittence fébrile, contractent des accès dont chacun augment l'intensité du foyer latent; et lorsque ce foyer s'est échauffé au degré de l'inflammation aiguë, les accès disparaissent, et la fièvre devient permanente. Combien n'ai-je pas vu de ces pernicieuses, exaspérées par le quinquina! Nos vieillards opulens, presques tous affectés de duodénites chroniques, en sont facilement saisis lorsqu'ils vont, sur la fin de l'été habiter leurs terres, arrosées par des étangs et par des rivières qui en font des espéces de marécages. Le docteur du lieu est appelé; il se souvient de ces classiques: Monsieur est trop delicat ou trop âgé pour qu'on puisse lui tirer du sang. Le sulphate de quinine est administré sans délai. La famille apprend à Paris que son chef est désormais sauvé et sauvé d'une fièvre pernicieuse des plus formidables par le bienfait du souverain fébrifuge et la sagacité du médecin qui a saisi les caractères pernicieux. Cependant la santé ne se rétablit pas: Monsieur est repris de la fièvre; elle devient continue, ou, du moins, elle a des paroxysmes si mal dessinés, qu'on ne sait plus si elle conserve quelque chose de son ancien caractère intermittent. Elle est devenue une rémittente ambiguë; on revient au kina, *non sans trembler*, mais il ne peut plus être supporté; Monsieur perd la faculté de digérer, et ne peut plus être calmé par les narcotiques. Il succombe avec les symptomes d'une gastro-entero-hepatic subaiguë, entée sur une chronique, qu'il n'est plus désormais possible de méconnaître, quoiqu'on fasse courir le bruit qu'il a été victime d'une fièvre cerebrale."* Now in this supposititous case, the effect of the remedy is misrepresented from want of knowledge of its true action, and the patient dies not from any positive injury inflicted by it, nor from inability on its part to control the morbid state described, but from its inefficient administration. Notwithstanding the opinion of Broussais to the contrary, the southern physician at all familiar with the use of quinine, will recognize in his graphic description, a condition of

* Examen des Doctrines Médicales, 3d ed., tom. ii. p. 178–9.

the system as certainly and as effectually controlled by it as the most simple intermittent. Had the quinine been resumed, "*sans trembler*," and fully and efficiently administered, the result would have been different. That disordered condition of the system, produced by the latent action of malaria, or by frequent relapses from imperfectly cured intermittent or remittent fevers, in which the patient is troubled with flatulence, and distension and oppression of the stomach after eating; indigestion; a morbidly craving but capricious appetite; bloated and cachectic countenance; enlargement of the spleen; intellectual torpor; slight irregular febrile paroxysms, and occasionally jaundice; is capable of being effectually cured by the decided use of quinine. Mild alteratives and chalybeates may be brought to its assistance,—but alone, it will do more towards effecting a cure in forty-eight hours, than the others without it in a week, or, than "leeches and gum-water" in months.

We are told by Broussais that Werlhof claimed for it great power in regulating the secretions,—to have found it useful in icterus,—and also used it, "pour un moyen de dégorgement des parenchymes et d'ouverture des secréteurs, puisqu'il le recommende malgré les obstructions du foie, de la rate, et même dans l'hydropsie," and believed, "que ce rèmede ne saurait nuire dans les cas de fièvre prolongée."* For this reason Broussais accuses him of being, "destrait de l'observation de ce qui est, par l'image intérieure de ce qui doit être, c'est à-dire, de ce que sa doctrine secrété lui represent comme chose certaine." Yet how correct the opinions of Werlhof, how mistaken the views of his critic! At present, for instance, who would not think it a waste of time to attempt the treatment of engorgement of the spleen with anything but quinine,—except, perhaps, change of climate? "Comment donc les classiques, [viz., Lancisi and Torti,] dont je m'occupe présentement n'ont ils pas fait des semblables observations? comment ont ils pu affirmer qu'à force de répéter les prisés de quinquina ils finnissaient par consolider la santé de maladies qui se trouvaient dans le cas de ceux que je viens de designer?"† How comes it, it may be asked, that Broussais was here the mistaken party himself, while accusing others of wilful blindness and prejudice? The answer may be given in his own words: "Les théories peuvent seules rendre raison de ces différences."

In the treatment of remittent fever, few have ventured to give or recommend quinine in the early stages. By a large majority of authors, a course of preparatory treatment is recommended. The "*way must be paved*" by the use of blood-letting, mercurials, purgatives, or whatever else the writer has found, or imagines he has found beneficial. In other words, quinine has been prohibited, until by other means the violence of the disease has been subdued in a great measure, the powers of the system considerably exhausted, and remissions procured, so complete as almost to amount to

* Examen des Doctrines Médicales, 3d. ed., tom. ii. p. 182.

† Op. cit., tom. ii. p. 179.

intermissions. In this state of the remissions, with the reduced state of the system generally, it was supposed that its mysterious influence in preventing the periodical recurrence of morbid action might be made available without danger from its supposed stimulant operation;—and with the erroneous impression that it possessed stimulant properties, there was no inconsistency in the recommendation. It must be admitted, too, that in those cases in which such a course is pursued with anything like success, that is, in the cases in which by any other system of treatment the violence of the disease is subdued, and the remissions rendered more perfect, the effect of the quinine is perhaps more prompt. In other words, when the disease has been in a great measure removed by other remedies, there is less left for the quinine to do, and less time is consequently required for its beneficial action. It would seem, that the supposition, that less of any given remedy would be required for the treatment of a case, almost already subdued, than a similar case taken during its original violence, would be a natural and probable one; and yet, the prompt and decided manner in which a case thus managed, and brought nearly to a favourable close by other treatment, would be immediately arrested by the quinine: while it was found that cases of the same character taken in the beginning, would not yield to the same doses; and the same period of continuance of the remedy, probably suggested the idea of its entire unfitness for the treatment of the early stages. Many seem to think, were we deprived of purgatives, the lancet and other depletive remedies, that quinine would be totally inadmissible in the treatment of remittent fever, as a previous course of these is absolutely necessary, in their opinion, to prepare the system for its use. The impression is an erroneous one, for although the use of other remedies will be found materially to advance the cure, there is nothing peculiar in the action of quinine which absolutely requires a course preparatory to its administration. True, it may not be capable of effecting as much alone as with the assistance of other remedies, but in this it is not singular. If in the case of uncomplicated remittent fever, a preparatory treatment has been considered absolutely necessary to the successful administration of quinine, the occurrence of local inflammation in combination with the fever, has been considered sufficient grounds for its total exclusion. On the contrary, nothing so much calls for its prompt and decided administration as this complication.

Setting aside the vast advantages to be derived from quinine, from its power of controlling the periodicity of diseased action, its prompt, decided and unequivocal influence, as a sedative, over the heart and arteries, renders it peculiarly applicable to all those cases of remittent fever accompanied by increase in the *force* and frequency of the heart's action. It is itself, when efficiently administered, the very best remedy for bringing about that absence of great febrile excitement, which was considered requisite for its successful administration as an anti-periodic. Undoubtedly,

there will scarcely occur a case in which the assistance of other remedies may not advantageously be brought to bear. In violently inflammatory cases, where the pulse is full and firm, blood-letting may and should be used in conjunction with it; not as a preparative, but as an adjuvant, acting with and for the fulfilment of the same indication. In other diseases, and with other remedies, the same course is frequently pursued, of bringing several to bear for the production of the same effect. Many treat pneumonia principally with tartar emetic, but preceding or accompanying its administration with blood-letting, is no admission that the former is an improper remedy without the latter, or that a preparative course is necessary for its administration.

The proper evacuation of the intestinal canal in all acute febrile and inflammatory diseases is an important step. There is scarcely a remedy of any kind, the peculiar action of which is not more readily and favourably produced after the evacuation of the fecal matters. Those that require to be absorbed, are probably more readily received into the circulation under such circumstances, while those that exert their influence primarily on the nervous system, may do so more effectually, such sources of obstruction and irritation, calculated to counteract, in many instances, the effect of the remedies being removed. Opium, mercury, tartar emetic, colchicum, all are examples. Quinine, like the rest, acts more decidedly, and less of the remedy is required for the development of its peculiar influence, where moderate evacuations from the bowels have been previously procured; more than this is never beneficial, and even the time required for it cannot be spared in all cases.

Great mischief has been and is still the consequence of this impression that a preparatory treatment—a reduction of the force and violence of the disease—is necessary for the administration of quinine. Many cases, originally mild under this course of preparation, go on getting worse and worse, and further and further from the supposed fitting standard, with each succeeding exacerbation,—while other cases become totally irremediable by any course of treatment after a few exacerbations,—and cases, too, that might have been promptly arrested by quinine at the termination of the first or second exacerbation. It is only the originally less severe cases that will bear a long continuance of any system of treatment, in which quinine is not a principal remedy. Whenever a *protracted* case, presenting violent symptoms, is met with, the probability is ten to one, that it was originally a mild case, treated with drastic purgatives, perhaps blood-letting and diaphoretics—and entirely without quinine. Cases originally violent, almost invariably die while *preparing* for the quinine, and those of moderate severity become worse under this *preparation*;—perhaps, so reduced in flesh and strength, that all depletive treatment has necessarily to be suspended, without any abatement whatever,—almost invariably, indeed, with an augmentation of the febrile symptoms. These, may-be, subside slowly

after the suspension of treatment, or, sometimes, although the fever may not be subdued, the quinine is ventured upon *in consequence of the debility* —and seems to prove powerfully *tonic*, by immediately arresting the progress of the febrile paroxysms, and thus *permitting* the healthy exercise of the organs of digestion.

Whatever the type or character of the fever, wherever there is reason to apprehend danger, no time should be lost in bringing the system decidedly under its influence. Where the remission is well-marked and of some continuance, "I generally prefer this period for its commencement, probably now from habit, more than anything else. Where the remissions are short, or when the case is urgent, and there is reason to apprehend a fatal termination in the next exacerbation, or where the disease is of so violent a character as to justify fears of the occurrence of any serious organic lesion, or a considerable aggravation of any that may already exist, it seems to me preferable to commence with it immediately, and this I generally do, without regard to the stage of the paroxysm." The fact, that the exacerbations frequently anticipate or come on at irregular and unexpected periods, and that, too, most frequently in cases of such violence, as to require decided and prompt measures for their successful management, is another reason for the immediate administration of the quinine. Two portions of from eight to sixteen grains each, according to the urgency of the symptoms, given within a couple of hours of each other, will most generally bring the patient under its influence two or three hours after the administration of the second portion. Where the case is of a very violent character, and but a short period is allowed the physician to act, before the time of the expected exacerbation, the whole of the above amount may be given at one time. Where even the physician arrives during the height of the exacerbation, when the case is one of great severity, the remedy should be immediately administered in full and decided doses, for the purpose of preventing mischief during the existing exacerbation, by at once bringing the arterial system under its sedative action.

The system once fully under the influence of the medicine, about eight grains every third or fourth hour will generally be sufficient to effect all the good it is capable of. Larger doses, indeed, may be given with safety, but they are rarely necessary, and frequently add much to the present discomfort of the patient. Where any decided inflammatory complication exists, the remedy should be continued until this is completely subdued, as its too early withdrawal, under such circumstances, rarely fails to be followed by renewed excitement of the arterial system, and an increase in the local inflammation. Where, however, the case is one of simple remittent, of quotidian or tertian type, the remedy need be continued but a short time after it has controlled one exacerbation. Where the type is that of a double tertian, it is absolutely necessary before its withdrawal, that two successive exacerbations should be controlled,—for the mere suspension of *one set* of

exacerbations does not secure the patient against a continuance of the other. Under any circumstances, however, when the patient is once strongly under its influence, it should be *gradually* withdrawn, as its sudden suspension is apt to be followed by that state of reaction which so frequently follows temporary depressions of the circulation from other causes.*

The best evidence of the favourable action of the remedy, is a diminution in the frequency of the pulse. This is generally also accompanied by an increase in its volume, where it has been small and corded, and where it has been hard or firm, it becomes soft. An abatement in the severity of the other symptoms, soon follows this improvement in the pulse. The skin becomes moist and cool, sometimes even so much so as to excite considerable alarm in the patient or his friends. This coolness of the surface attending the perspiration produced by quinine, may be readily recognized by the state of the pulse and other marks of the action of the remedy, and of an improving condition generally,—and whatever the alarm of the patient and others, the *initiated* can smile in satisfactory security. The tongue also becomes gradually moist, the thirst diminishes, and an improvement in the appearance of the exacerbations soon succeeds.

The influence of the remedy once fairly induced in the system, it is rare for another exacerbation to follow, and a gradual and continuous amendment generally goes on from this period. Occasionally, however, another exacerbation does take place, and during its continuance the patient's situation, in some cases, is more uncomfortable than during any previous exacerbation. Not that in regard to the symptoms generally, any increase has taken place upon the previous exacerbation; these may be even slightly improved, but an indescribable feeling of anxiety and distress is complained of. In a few instances, most of them in one family of mulattoes, where an *exacerbation occurred while the patient was pretty decidedly under the influence of quinine*, a most distressing delirium has supervened, attended with jactitation, scratching of the nose, pulling at the lips and tongue, and sometimes the hair; but has always subsided at or before the usual period of remission, and its recurrence always prevented by bringing the system still more fully under the influence of the

* In the July number, for 1844, of the American Journal of the Medical Sciences, in an article on the treatment of the inflammatory affections of malarious districts, in speaking of quinine, I remarked,—"Its most general effect, however, is that of a sedative; more certainly controlling the action of the heart and arteries than any remedy with which I am acquainted." In commenting upon this, in the March number, for 1845, of the New Orleans Medical Journal, my friend, Dr. P. H. Lewis, of Mobile, observes: "Had Dr. Boling seen this fever, (yellow fever,) he would have said, if there is no remedy from the crucible of the chemist, there *is one*, at least, from the storehouse of nature, which exerts a greater influence over the heart and arteries than does quinine; that remedy is the unknown agent of yellow fever." In this matter, Dr. Lewis may be assured that he is "in error." Dr. Boling would never have thought of calling "*the unknown agent of yellow fever*" a "*remedy*."

remedy. I have never been willing to attribute these annoying symptoms altogether to the quinine, as in all the cases in which I have observed it, opium or some of its preparations had also been given; and, in some instances, the latter article alone has seemed to be the cause of very similar symptoms.

Sometimes, the system being apparently under the influence of quinine, the first exacerbations, after this state is induced, will be but imperfectly controlled, and the case perhaps go on in this way for some time, each succeeding one, however, being less and less severe, till they finally yield. At other times, the first exacerbation after the system has been brought under the influence of the remedy, will seem to be controlled only so far as the heart and arteries are concerned, the pulse remaining at the same standard as during the remission; sometimes, indeed, where very full doses have been given, even less frequent,—while all the other symptoms give evidence of a severe exacerbation. The tongue, for instance, has again become dry,—supposing it not to have been so during the previous remission,—while the thirst, nausea and vomiting, heat of skin and general distress, all attest a high state of fever. This state subsides at the usual hour of remission, if not before, and nothing but a continuance of the remedy in moderate doses, through the period for the next exacerbation, is necessary to prevent its recurrence. Frequently, indeed, especially in cases taken under treatment at a sufficiently early period to prevent the occurrence of serious organic lesions, even this further continuance of the remedy will be unnecessary, and convalescence may be considered as commenced, with the subsidence of this modified exacerbation.

Although it is in all those varieties or shades of the disease termed *pernicious*, and recognized as such at first, that the quinine should be most promptly resorted to, yet we should not forget its *insidious* character, and that at times, cases, apparently of the mildest form at first, suddenly and unexpectedly assume a grave character, and perhaps prove fatal in the first severe exacerbation. It is true, that a large majority of the cases of simple remittent fever, if drastic purgatives, emetics, and "diaphoretic mixtures" are not ventured upon too freely, may be dallied with some time before they are beyond the control of quinine, yet every now and then the neglect of its early administration will have to be regretted.

It is in that form of pernicious fever generally called congestive, that its administration has to be conducted with most caution,—and this is peculiarly so in those cases not originally very violent,—but which have been made so by the injudicious use of the lancet and drastic purgatives. Here, in addition to that *feeling* of prostration and debility which attends all severe cases of remittent fever, we have a more *genuine* state of debility superinduced by the lancet and purgatives conjointly,—while the latter have also, at the same time, played a part of their own, in producing inflammation of the stomach and bowels, or in greatly augmenting that which may

have already existed, perhaps as a necessary part of the disease. Here we want the remedy to act in breaking up the periodicity of the disease, while, if possible, its depressive action is to be avoided or counteracted. If we fail to administer enough to arrest the expected exacerbation, the patient dies in it, perhaps, while, at the same time, it is to be dreaded that the quantity necessary to effect this may destroy by its depressive action. Unfortunately, too, the state of the stomach and bowels renders the free use of stimulants generally, (by which this depressing action of the remedy might be counteracted while its other property is brought into play,) of doubtful propriety. In cases precisely similar to our congestive fever, Senac advised the combination of serpentaria with the cinchona, and where the stomach is sufficiently retentive, there are, perhaps, few better articles that we could use with the quinine. There is nothing, however, which so well sustains the system against the depressing action of the principal remedy as opium; while, at the same time, it alone seems at all capable of controlling the irritability of the stomach. Piperine, under such circumstances, I have never seen do anything but mischief, acting powerfully as a local irritant, and but slightly as a general stimulant.

In many cases, such is the irritability of the stomach, even during the remissions, that we cannot rely with any certainty on a sufficient quantity of medicine being retained to produce the desired effect,—indeed, in some cases, everything is rejected almost as soon as swallowed. Under such circumstances, the quinine may be administered in enemata of starch. From twenty to thirty grains may be given in a couple of ounces of starch, every second hour, till the system is brought fully under its influence,—after which, its effects may be sustained by less frequent repetitions—say every third or fourth hour. As a stimulant, the opium may be administered in the same way, and as much as the patient can bear without narcotism, say forty drops of the tincture with each of the first three or four enemata, and double that quantity when the intervals between them are extended. Sometimes, when diarrhœa exists, and especially where the rectum has been rendered irritable by the previous administration of laxative enemata, there is some difficulty in retaining the quinine. When this is the case, the irritability of the rectum should be allayed before the quinine is commenced with, by an enema of starch, containing from 80 to 100 drops of the tincture of opium alone.

The impression still exists, even with many of those who venture on the use of quinine in remittent fever, that it is only during the remissions that it should be given, and that mischief must certainly be the result of its administration during the exacerbation. So far is this from being true, that there is nothing with which we can more effectually aid in cutting short an exacerbation than the quinine itself, commenced and administered freely during that time. In most of the cases to which I have alluded, in which I had a suspicion of certain unpleasant symptoms being produced by the

quinine, either the remedy had been administered at so late a period of the remission, or the exacerbation had anticipated so much, that its first effect upon the system generally was felt just at the height of the exacerbation. But in those cases, and they were few, in which unpleasant effects even seemed to be produced by it, it rarely failed to diminish the length of the exacerbation. Undoubtedly the action of the quinine is, in most cases, more favourable during the remissions than during the exacerbations. Less of the remedy will be required to produce its peculiar effect, and this may more promptly be brought about. But is it alone in this respect? Is it not the same with almost every article of the materia medica? Who ever saw a cathartic act as mildly and as efficiently during an exacerbation of fever as during the state of remission?

The drinks should be sparing in quantity, but may be allowed frequently. An attempt to satisfy the craving for cold water during a high exacerbation would be entirely futile, while a free indulgence only adds to the nausea and vomiting, and epigastric oppression. Most generally the desire is for pure cold water, with the addition occasionally of acids. A single swallow of iced water, alternated occasionally with iced lemonade, or some other palatable acidulous beverage, may be allowed every fifteen or twenty minutes; while the patient should be encouraged to wash his parched mouth occasionally with the same. Small lumps of ice may also be occasionally swallowed with benefit. Effervescing draughts and mixtures, even when not actually injurious by any other quality, prove so from the distension of the stomach they occasion, and are beneficial in no way.

During the height of the exacerbation, when the temperature of the surface is much elevated and *general*, sponging the body over with cool or tepid water, frequently has a tendency to allay the febrile excitement. Where it produces any unpleasant chilly sensations to the patient it should be discontinued, as, under such circumstances, it is apt to produce slight rigors, followed by increased excitement and irregularity in the course of the exacerbations,—a thing to be avoided, if possible, as calculated to embarrass the physician in the timing of his remedies. It should be commenced at the head, descending to the chest and abdomen, and lastly to the extremities. In the earlier period of the exacerbation, the sponging will frequently have to be desisted from, on account of its producing chilliness,—while an hour later, though no increase in the temperature of the surface may be observable,—it will be borne with pleasure. Its beneficial influence is generally much more evident with children than with adults. It is, however, much less immediately and decidedly beneficial with any class of patients in remittent fever, than in scarlatina.

In cases attended with severe headache, coma, or delirium, where the heat of the surface is *general*, and the *pulse full* and *firm*, the cold douche to the head, while the feet are immersed in warm water, is of much service; while, on the contrary, where there is the least irregularity in tem-

perature, where, for instance, the head, chest, and abdomen are hot, and there is the slightest tendency to coolness of the fingers and toes, with a small or corded pulse, even with the presence of coma or high delirium, the cold douche never proves beneficial, and occasionally, perhaps always, injurious. It seems to have no influence in moderating the heart's action, or diminishing the quantity of blood transmitted to the head, while, by constringing the vessels of the surface, the whole mass is forced in upon the brain. In one post-mortem examination that I have made, where the cold douche was freely used under the above circumstances, the patient having been furiously delirious, with a small and corded pulse, while the action of the heart itself was loud and tumultuous, the brain and membranes were found completely gorged with blood, while scarcely a red dot was observable in any part of the scalp, or even in the vessels of the face.

Diet.—All that is necessary to be said on this subject can be comprised in but few words. In nineteen cases out of twenty, until the fever is arrested and convalescence established, nothing to eat should be allowed. The duration of the disease is seldom sufficiently extended to produce any want of nourishment in the system. Either the patient is convalescent or dead in a few days, few cases extending much beyond a week. In the few rare cases that become so protracted as to require for the system nourishment before convalescence may be said to have commenced, but the lightest and most palatable articles can be used, so fastidious is the taste, or rather so complete is the disgust for everything eatable. Weak wine whey, chicken soup, &c., are perhaps the most useful articles. Porter will sometimes be tolerated, and may occasionally be found useful. In some cases, where the want of nutriment seems to be felt by the system, while the continuance of the morbid state of the stomach prevents its being taken in that way, enemata of rich soup, beef-tea, &c., sometimes seem to have a sustaining influence; and, what is curious, I have several times seen cases in which a strong feeling of disgust for particular articles has been produced in this way, so that the mere thought of them would create nausea, as is the case when a patient too early or too freely indulges his appetite—the feeling alluded to requiring the enemata to be varied several times.

But if the disgust for food was excessive during the continuance of the disease, convalescence once established, the appetite is proportionately craving. It returns almost suddenly, and no persuasion, no advice, in many cases, can restrain the patient within the bounds of prudence. Consequently relapses from improper indulgence of the appetite are by no means unfrequent. Light soups the first and second day of convalescence, after which rice, mush and milk, broiled birds, &c., may be allowed, gradually increasing the diet in strength and quantity as the digestive power is restored, and not in a ratio with the demand of the patient's appetite.

I have now, I believe, glanced at all the principal therapeutic agents that

I have found beneficial in the different forms of remittent fever; but it may not be amiss to notice one or two that have had their warm advocates, and are not yet entirely excluded from the list of the practitioner.

Of Emetics.—No language more emphatically expressive of their mischievous effects in remittent fever, can be used than that of Mosely, in relation to their effects in the yellow fever of the West Indies. "How often have I seen and lamented the effects of emetic tartar, given to remove the supposed cause of the treacherous symptom of vomiting: even in slight degrees of fever in the West Indies, in young plethoric subjects newly arrived, the stomach has been sometimes destroyed by it. Instead of removing the irritating sickness in this fever or exciting a diaphoresis, a spasm has been produced in the stomach, incessant vomiting, inflammation; the vessels of the thorax and head have been stifled with blood, *and the patient has vomited away his life.* Nature's index here is misconceived." Yet so strong is the feeling on the part of the patient that vomiting will relieve him, that almost his first request will be for something to produce this effect, and the utmost persuasion, in many instances, can hardly prevent him from inserting his finger in his fauces, and by other means augmenting the tendency to vomit; and he is encouraged to a repetition of these attempts by a feeling of relief experienced temporarily, after each evacuation from the stomach, however small. The physician has often to deplore, and with difficulty to combat the due effects of emetics taken before his arrival for the removal of the "load on the stomach," the oppression and nausea, which they are only calculated to augment. Of the whole class, tartar emetic is perhaps the most *poisonous.* "My reasons," says Bancroft, "for condemning the use of emetics, are, first, that they commonly fail in their principal object of removing nausea, which is very apt to continue, and even in a greater degree than before; for this symptom rarely proceeds from any load of undigested food, or bile, or phlegm on the stomach, but seems rather to proceed from other causes, such as sympathy with the morbid state of the brain, or of the surface of the body, or else from an inflammatory affection of the coats of the stomach itself, and these are causes which emetics have but little power to remove." It would probably not be too much to say that the vomiting *almost always* depends upon the latter cause, and that this emetics have *no* power to remove.

Diaphoretics.—If we confine the word diaphoretic, in speaking of this disease, to those agents that really prove such in it, then are they applicable to its treatment. Blood-letting, quinine, opium, cold ablutions and calomel, all, when properly applied and acting favourably, prove more or less sudorific; but in that large class of remedies generally denominated diaphoretics and sudorifics, there are few that can be said to have such an effect in the fever in question. On the contrary, the most of them have a diametrically opposite effect by augmenting the inflammation of the stomach and bowels, upon which at least many of the febrile phenomena are dependent,

and all of them increasing the nausea and distressing oppression at the epigastrium, if not by any more injurious property, at least by their bulk and taste, and prove, also, eminently mischievous by the disgust they create for, and the inability they produce of retaining other and important remedies on which the cure depends. Dover's powder, small doses of ipecacuanha, pulvis antimonialis, and all the various diaphoretic mixtures, compounded of acetate of ammonia, spiritus nitri dulcis, vin. ipecac., paregoric, &c., popular though they are with some, should be avoided. The Dover's powder is not only objectionable on account of the ipecac. it contains, which adds to the incessant nausea, but also from the sulphate of potash, which, if continued long, never fails to induce a high state of irritation of the bowels, followed by frequent thin and watery, sometimes bloody stools.

Post-mortem appearances.—There is some probability that these differ a good deal in different seasons, and in different localities, as considerable diversity exists in the descriptions of authors.

In regard to the lungs, heart, kidneys and bladder, there is nothing at all in the post-mortem appearances at all characteristic or peculiar. These organs, as in all other acute diseases, may all be at times the seats of accidental complications, and when so, of course give post-mortem evidences of the same. The same may be said measurably of the brain, which, although at times affected with inflammation and congestion, and presenting the post-mortem evidences of these conditions, is nevertheless frequently found in an entirely healthy state. In all the cases of the comatose remittent that I have examined, great congestion of the brain and membranes has been present. In that shade of the comatose remittent last described I should not expect to find these conditions present. But I have never examined a case, none of the kind having ever proved fatal in my practice.

The *stomach* I have invariably found presenting decided traces of recent inflammation, and there is no other organ in regard to the post-mortem appearances of which authors have been so unanimous. We are told by Pringle, that Thomas Bartholinus, on finding *the stomach and duodenum always inflamed and mortified*, in a malignant remittent fever that prevailed in Copenhagen in 1652, *assigned these parts as the principal seat of all malignant fevers.*

The *intestines* also present frequent marks of inflammation, though not so universally as the stomach. The duodenum most generally seems to suffer from a continuation of disease from the stomach, and the mucous follicles or glands of Brunner of this part, as first noticed in this disease by Doctor Stewardson, will generally, though not invariably, be found enlarged. The jejunum is, perhaps, less frequently diseased than any other part of the intestinal canal, though occasionally it will be found to contain patches of ramiform and capilliform injection. The ilium, more frequently than any portion of the intestinal canal, the stomach, and, perhaps, duodenum alone excepted, presents traces of inflammation, in all cases increasing

in intensity as we approach the ileo-cæcal valve. The glands of Peyer, to which attention has been more particularly directed of late in consequence of their diseased condition being considered the anatomical characteristic of typhoid fever, have, by different observers, been found in different conditions. They are stated by Doctor Bartlett to "have been found uniformly healthy." He has here reference merely, however, to cases examined by Doctor Gerhard and Doctor Stewardson, in the Pennsylvania Hospital at different times. In September, 1843, I examined a case of remittent fever, an originally mild one, but which, by neglect and mismanagement, was permitted to assume a grave form. The case was unusually protracted, commencing August 7th, and terminating fatally on the 17th of September. In my notes of the post-mortem examination, which was made three hours after death, it is stated that "the small intestines presented slight traces of inflammation throughout nearly their whole extent, increasing in intensity in descending to the ileo-cæcal valve. The elliptic plates were of a much darker colour than the rest of the mucous membrane, granular to the eye and touch, the margins well-defined and slightly elevated, and some of them presenting distinct traces of ulceration. These characters were more distinct just above the ileo-cæcal valve, and were gradually lost in ascending the intestine. Mesenteric glands slightly enlarged." In another case, of a negro girl, terminating fatally on the ninth day, August, 1844, examination five hours after death, it is stated, that there was "considerable inflammation of the small intestines; elliptic plates of ilium elevated, granular to the touch, and darker than the rest of the canal. Solitary glands much enlarged, many of them ulcerated; the margins hard, and the edges of the ulcers abrupt: the ulceration in some places extending through all but the peritoneal coat. Mesenteric glands a good deal enlarged." In this last case diarrhœa existed, in the former not. These are the only instances in which I have observed any morbid alteration of the elliptic plates. They are, however, almost the only cases terminating fatally at so late a period that I have been permitted to examine. The result of these has induced me to think it probable, that in many protracted cases some alteration of the glands of Peyer and Brunner will be found, and at an earlier period in those which have been attended with diarrhœa.

The *spleen* is, in a majority of cases, found enlarged, dark, and somewhat softened; and occasionally this alteration is so great that the interior of the organ resembles a mass of black clotted blood contained in a coarse cellular mesh; and so pulpy as readily to yield to but the slightest pressure. This alteration of the spleen is, however, more a consequence of what may be called the latent action of malaria than a necessary accompaniment of remittent fever; as in no instance have I ever found enlargement of the organ during life, or any morbid appearance after death, in a first attack of remittent fever, in a person who had not previously resided some

considerable time in a malarious region. In all cases, however, where any enlargement exists prior to the attack, a considerable augmentation almost invariably takes place before the patient dies. In almost every case, perhaps every one, where any enlargement of the spleen is present during an attack of remittent fever, or after death from the same, on inquiry we may be satisfied of its having existed prior to the attack.

The *liver* is the organ to which, from his preparatory instruction, the young physician, commencing practice in the south, will at first have his attention more especially directed, and will be governed much in the application of his remedial agents by its morbid or supposed morbid condition. A few authors speak of having found it but slightly altered, but by a large number of those whose authority has been most influential, we are led to expect manifest and palpable changes. In the one case which seems to have determined Dr. James Johnson in the rejection of the Peruvian bark as a principal agent, and to have decided him in regard to his subsequent practice, blood-letting and calomel, the liver was found "so gorged, as it were, with blood, that it actually fell to pieces on handling it." Although we are not taught in all cases to expect to find the alteration so extreme as in this instance, yet in a less marked degree, this is the character of what we are taught to expect in almost all. I had so strongly made up my mind in regard to the existence of this state of the liver, in the commencement of my practice, that it was a matter of great surprise to me *never* to find well-marked fullness or tenderness of the right hypochondriac region. This surprise was far exceeded, however, by that which I felt on finding no traces of engorgement of the liver present, in my first post-mortem examination. I looked upon this case, however, as an exception; but all my future examinations revealed the same state of things.

In no case that I have ever treated have I found during life any evidence of affection of the liver more than that functional derangement partaken by it in common with every other organ during the state of febrile excitement; and I will venture to say that, in nearly every case, this functional disorder will be as palpable and as well marked in the kidneys as in the liver. I will also remark, *en passant*, that in a practice of nine years in the south, I have never had under treatment one single case of well-marked and unequivocal hepatitis, acute or chronic.

Disappointed in not finding the changes in the liver which I had been led to expect, and the morbid alterations, if any, being so different from what others had described, and less easy of appreciation, *particularly to one not accustomed to frequent post-mortem examinations*, I was led to believe that lesions of this organ were less frequently found after death than of almost any other.

In an article published by Dr. Stewardson, in the *American Journal of Medical Sciences* for April, 1841, in which, among certain other post-mortem appearances which he is disposed to think somewhat peculiar to remit-

tent fever, he describes an appearance of the liver not heretofore particularly noticed, and, from the result of a good many examinations, arrives at the conclusion that it is probably "the anatomical characteristic of that disease." This alteration is described as consisting, in most cases, in a flabby state of the organ, the colour externally being of a bronze or a mixture of bronze and olive, and internally of an olive, with an entire extinction of the natural reddish-brown. It appears to have been generally of the natural size, and "the two substances so blended as to be scarcely distinguishable." The appearances described by Dr. Stewardson, have since been found by others, and are particularly noticed by Dr. Swett in the *American Journal of Medical Sciences* for January, 1845. I have given above what, on a pretty close examination of Dr. Stewardson's cases, seems to me to have been the appearance in a large number of them, but still the description of the "*anatomical characteristic*," as given by himself, differs materially from this in some of the others. For instance, we have one described as being "of a pale, slightly greenish lead colour," one "of a dull bronze," and in another the "surface of a dull lead colour." In the cases of Dr. Swett there is also found this diversity of appearance in the colour of the liver. One case "presented externally a slate colour, which, when placed in a proper light, gave a bronze tint." Another was of "a pale slate colour, and in many parts a bronze tint was perceptible,"—and another "externally was of a bronzed appearance."

On the appearance of the above article of Dr. Stewardson, my attention was again directed to the liver, but I have been able in but a very few instances to find any alteration; and even where such did exist, a slight exertion of the imagination would have, perhaps, been necessary to trace a close resemblance between them and the descriptions of Dr. Stewardson. Indeed, in a large proportion of cases, the organ, so far as I am capable of judging, was entirely healthy. Where it was otherwise, the *concave* surface of the organ was of what appeared to me an uniformly bluish-slate colour, extending to about the depth of a quarter of an inch; the line of demarkation between this, and that portion which presented a natural appearance, being well defined. In every case in which I have observed this appearance, with one exception it was confined to the concave surface, the convex surface and the interior being entirely healthy. The exception was in a case which, in the beginning, presented the symptoms of what is generally denominated verminous or infantile remittent fever. In its progress peritonitis supervened, and the patient died about the beginning of the fourth week. On a post-mortem examination, a considerable quantity of serum and coagulable lymph was found in the abdomen, and *both* surfaces of the liver were found uniformly of the colour above alluded to, the interior of the organ being apparently healthy. This appearance of the liver I have observed in an equal proportion of cases, I think, in the post-mortem examinations of patients dying from other diseases; though I have

no recollection at this time of having observed it in any case, in which the patient had not laboured under an attack of remittent or intermittent fever, within a month or six weeks previous to the commencement of the disease causing death.

In conclusion, I would observe, that all my remarks in regard to the symptoms, treatment, and post-mortem appearances of remittent fever, are made with reference to the disease as it prevails here in Montgomery, and in its immediate vicinity, for, as I have before observed, these may all vary in different localities. "*Romæ scribo et in Ære romano.*"

ART. III.—*An account of a remarkable case of Injury of the Head.* By WILLIAM FORMAN, M. D., of Princeton, N. Jersey.

THE elevated functions of the Brain, its extensive sympathies, and its immediate relations to the moral and intellectual phenomena, give to its injuries and diseases a character more exalted than those of any other part of our structure. It is only by a series of careful observations upon the seat of these lesions, and connecting the parts they involve with the particular functions impaired or suspended, that we can ever hope to arrive at anything like truth in our researches after the specific locality of its various powers, whether these relate to its action as a physical organ, or to its higher connection with the operations of the mind. With this conviction I offer to the profession the following case of injury of the cerebrum, which, if it present nothing new in regard to the functions of this organ, it supplies to the chain of results derived from experiments on inferior animals, an additional link obtained directly from the brain of man. For the account of the accident and its immediately attending circumstances, I am indebted to my talented young friend and former pupil, Dr. Clayton Blackwell, who says:—"At eleven o'clock on Friday morning, Sept. 26, 1845, Mr. R. S. B., aged 17 years, a student in the College at Princeton, accompanied by two of his young friends, came to the house of my father, a mile and a half distant from the village, on a shooting party, and while preparing for the sport of the day, he accidentally discharged his gun, and the contents (duck shot) passing the left side of his head, tore away the ear above the concha, together with a portion of the scalp and temporal muscle, making a frightful wound in the integuments, and producing a compound comminuted fracture and depression of the lower and middle part of the parietal bone. He leaped into the air and fell upon his face on the ground. He was insensible, convulsed, and bleeding profusely from the wound. There was some hemorrhage also from the nostrils, and I should think that he lost in all a quart of blood. His pulse was imperceptible. Having no means at

command by which I could render him any assistance, his companions were dispatched to the village for his friends, and a physician. You being absent, Drs. Dunn and Alexander visited him. Before their arrival, however, reaction had taken place. He had vomited several times, and spoken frequently, exclaiming, 'Boys! Boys!' and once, when addressed by name, he answered 'What?' The wound was now occupied with coagulated blood, and a small quantity of brain. The fracture comprised a little more than an inch in width of the inferior part of the parietal bone, and was bounded posteriorly by a line, extending from the centre of the meatus auditorius externus to nearly a right angle with the sagittal suture, from which there proceeded under the integuments anteriorly two fissures, including between them two deeply depressed fragments, the inferior, or that next to the squamous suture, being much the larger.

"Dr. Dunn pronounced the injury in itself mortal, and that it must quickly terminate. Indeed, he thought him dying, and even to dress the wound a work almost of supererogation. The blood, however, was washed off, the chasm filled with lint, and a bandage applied. During these services, the patient evinced great sensibility, exhibiting signs of pain on the slightest touch of the parts. After the completion of the dressing, his pulse was small and feeble. The friends of the young gentleman now had him conveyed to the village, to the house of the late Prof. Dod, from whom he received every care and attention that affection could devise, or kindness bestow. Through the remainder of the day and night, and the following day, he was partially comatose, though easily aroused; his breathing was slow and at times stertorous. He vomited occasionally, and the matter ejected was mixed with blood. His pulse was slow, beating but forty-three strokes per minute, and very feeble. The pupils nearly natural in size, and not devoid of sensibility to light. Temperature of the skin below the healthy standard."

27th. At nine o'clock on this (Saturday) evening, having returned to my home, I visited the patient in consultation with Dr. Dunn and Dr. J. S. Darcey, of Newark, and found him in the situation described by Dr. Blackwell. After a careful examination of the fracture, it was agreed that a portion of the bone should be removed by means of "Hey's Saw," large enough to allow the use of the elevator to restore the depressed pieces to their natural level, while symptoms should dictate the treatment to be afterwards pursued.

The performance of the operation was referred to Dr. Darcey, who, after making an incision through the integuments of sufficient extent to permit the free use of the saw, removed a portion of the parietal bone somewhat triangular in shape, about an inch in its longest direction, and eight lines wide at its base. The larger fragment was elevated to its proper position, while the smaller, of an irregular quadrilateral figure, about eight lines by four, beaten down upon the dura mater, and entirely detached from its

natural connection, was removed. About three lines above the superior edge of the elevated fragment, the pulsation of the brain brought into view, through a rent in the dura mater, another piece of bone, a scale, almost entirely from the inner table of the skull, of an irregular figure, and half an inch in its greatest diameter. On the removal of this a gush of brain followed, which continued to flow, until half a wineglassful was computed to have been lost.

The wound being cleaned, a dressing of lint with simple cerate and compresses, secured with adhesive straps and a roller, was applied, and the patient placed in bed. It may be proper to state that the edges of the lacerated scalp were retracted from those of the temporal muscle more than half an inch, much swollen, and so irritable that removing the hair preparatory to the operation, and the necessary handling of them during its performance, subjected him to great apparent suffering. His pulse rose immediately to eighty strokes in a minute, and the night was passed in alternations of coma and restlessness. The wound discharged so much blood and brain that the dressings and pillow were saturated with them.

28th. Has been restless through the day, frequently rising from his bed, and strongly resisting every attempt to prevent him from doing so. Pulse 110, small and compressible; skin soft, and below the healthy temperature. Tongue natural, with the exception of a delicate veil of white. Bowels not having been moved since the accident, an injection was given him at four o'clock, P. M., which operated well.

29th. Action of the iris healthy; all other symptoms as yesterday. Dr. Dunn, having withdrawn from further attendance on the case, at four o'clock, P. M., I dressed the wound, a proceeding which was rendered necessary by the rigid unyielding condition of the bandages, and the excessive fetor of the accumulated discharges. The adhesive straps used to secure the dressings after the operation for elevating the depressed bone, were all found detached, and a large fungus cerebri was seen projecting through the aperture in the cranium. This substance was not composed of *pure* brain, nor covered by any of the membranes of that organ. Neither was it formed of coagulated blood, as Mr. Abernethy supposed some of these productions to be; but it was an organized body, springing from the brain, and subsisting by its own mode of nutrition. The whole surface of the wound, the pericranium, the temporal muscle, and the edges of the scalp, are pouring out an abundant secretion of pus. The ulcer was carefully cleansed, and dressed with simple cerate, while compresses wet with lime-water were applied to the fungus after the manner of Sir Astley Cooper.

30th. For the first time since the accident, he manifested a return of consciousness last evening, by answering correctly such questions as were proposed to him, and by a ready compliance with whatever requests were made of him; though he is still incoherent at times, muttering deliriously the expression of his bewildered thoughts. He attempted to relate some-

thing this morning, but could not confine his attention to the subject sufficiently long to enable him to do it intelligibly, and after a laboured but unsuccessful effort, of which he seemed himself to be conscious, abandoned it in despair, exclaiming "I can't." About noon his mother was permitted to visit him, for the first time since the operation. He recognized her at once, and taking her hand, embraced her with the tenderest affection. Since four o'clock this afternoon, has been very restless. Pulse eighty, small, and quick. Skin on the inferior parts of the body and lower extremities, below the natural temperature, while over the chest it is hotter than in health. Tongue white, and thirst urgent. Directed rice-water and lemonade for his drink; and as his bowels had not been moved since the day before yesterday, requested half a pint of infusion of senna to be given him.

October 2d. Consciousness and intelligence improving, though his speech is still occasionally incoherent. He made an exclamation to Prof. Dod, this afternoon, of the impropriety of which he seemed suddenly to catch the sense, when he remarked apologetically, "I did not intend to say that. I often express what I do not mean." Respiration, which has heretofore been laboured, is much improved. Temperature more equal, but below the healthy range. Face slightly flushed. Pulse sixty-two, in the recumbent position, but rises to 90, after walking across the room, which he *will* occasionally do. There is some appearance of granulations on the edges of the wound, but the bone is everywhere denuded, and commencing necrosis evident. Discharge abundant and excessively fetid.

The above note of his situation was made after my morning visit. At eleven o'clock he had a slight chill, which was followed by symptoms of fever. His pulse rose to 110, but was small and vibrating. The carotids throbbed violently; his face was flushed and bronzed. Temperature of the surface generally high. Mind wild and wandering.

Make cold applications to the head, and give him a pint of the common injection immediately.

Evening.—The injection brought away considerable feculent matter, and reduced his pulse, which continued small and compressible, to 92. He is partially comatose. Tongue covered with a thick white fur. Deglutition difficult, and his upper lip much swollen, and covered with an eruption of exceedingly small vesicles.

3d—morning. Stupor continues; contractility of the iris healthy. Respiration difficult; pulse eighty, and offers *rather* more resistance to the fingers than it has heretofore. Tongue dry and brown. Lips and teeth beset with sordes.

Evening. Articulation and deglutition suspended all day. An examination of the mouth and throat disclosed the following condition of their lining membrane. From near the roots of the upper incisor teeth, extending backward over the velum palati, uvula, lateral half arches, and fauces, as

far down the pharynx as I could see, it was covered with a thick, closely-adhering yellowish pellicle. After an unsuccessful attempt to remove it with the forceps and a mop, in which I did not detach more than would have covered half a dollar, I applied the nitrate of silver to its whole surface, from as far down the pharynx as I could with safety reach, to its anterior termination behind the superior incisor teeth, and bathed the external throat with a liniment composed of croton oil two parts, and Granville's lotion one, which was repeated until a copious eruption of pustules was brought out. I opened a vein this afternoon, but before he lost three oz. of blood, approaching syncope came on, and I was obliged to tie up his arm.

4th. Passed a restless night. Is delirious, and constantly striving to leave his bed, and escape from his chamber. Head, and superior parts of the body hot; extremities cold. The membranous exudation noticed yesterday, is arrested in its progress, and like the tongue and lips, is of a dark brown colour. Respiration and deglutition improved. Teeth covered with sordes. The edges of the wound are spread over with a diphtheritic effusion precisely similar to that in the throat. Pulse 83, small and vibrating. Let bladders of ice be kept on the head, flannels and hot bricks to the feet and legs, and bathe the throat and mouth every six hours with a strong solution of alum.

5th. Worse to-day; debility very great. Feces and urine are discharged involuntarily. Pulse 94, small and feeble. Deglutition difficult; voice inarticulate. Profuse discharge of fetid sanies from the wound, and its whole appearance unfavourable. Fungus larger, and another springing out by its side. No adhesion between the bones and the integuments. What can be seen of the dura mater appears to be gangrenous. The fluid of the vesicles on the upper lip has concreted into a dark-coloured scab, which extends into, and fills the nostrils. Lip itself much swollen. Has had several convulsions of the muscles of the face and neck. Pseudo-membrane of the mouth and throat is being detached.

6th. No recurrence of the convulsions since two o'clock this morning. Consciousness returned. Makes known his natural wants. *Motor* hemiplegia of the right side. Pulse 98, soft, and more full; skin cool and soft. Countenance and spirits good. Wound as yesterday.

7th. Consciousness perfect. Sensation of the paralytic side but little, if any, impaired. No improvement in his power to articulate. Fractured portions of the cranium all necrosed; in other respects, the wound is as last noted. Towards evening became more restless than he had been through the day. Pulse 72.

8th. While dressing the wound this morning, there was an escape of fetid gas from between the dura mater and the cerebrum, accompanied with a gurgling sound, and the discharge of much pus from around the

base of the fungus. Tongue dry, and thickly coated with a mahogany-coloured crust. Other symptoms as yesterday.

9th. Slept through most of the night. Bowels have been moved sixteen times to-day, of the necessity for which he was entirely conscious. The matter discharged dysenteric, being composed principally of mucus and blood. Injections of sago and laudanum arrested the disease. Put a ligature round the fungus this morning.

10th. No return of dysenteric symptoms. Power of the will extends to the paralyzed leg to-day. He could move his arm yesterday by an exercise of volition. Other symptoms as last noted. Ligature came away this morning. Fungus but little reduced in size.

11th. Slept at intervals throughout the night. Fungus rather smaller. The dura mater very much thickened, and protruding through cranium, is seen surrounding the base of the tumour like the calyx of a flower. The anterior edge of the temporal muscle has projected some smooth, red, and irritable granulations, which extend to the base of the fungus. Discharge profuse and fetid.

12th. The vacuity left by the piece of bone, which was removed by the saw, is occupied by a granulation, which, as there is nothing externally for it to attach itself to, is assuming an unhealthy appearance. On cutting away a small gangrenous piece of the dura mater from the posterior part of the fungus, there was an exit of pus from between them, to the amount of a teaspoonful.

13th. A fragment of bone loose, but not sufficiently so to admit of removal without the exertion of more force than would be proper to use. Diphtheritic lamen disappeared from the wound. Appetite keen. Allow him a diet of baked apples and boiled rice.

14th. More listless and disposed to sleep to-day. Skin and tongue dry. Pulse 60—65. Put a ligature round the base of the fungus this morning.

15th. Slept well last night. Countenance healthy and mind cheerful. Pulse, skin and tongue as yesterday. Some bleeding from the wound on removing the dressings this morning. Edges irritable. No granulation. All the fungus included in the ligature, came away without any diminution of its previous size, which is more than equaled by its growth in the last twenty-four hours. There had been no perceptible augmentation of its dimensions for several days, until this morning. Was the action of the ligature in any way promotive of this? Pulse 60.

16th. Texture of the fungus, fibrous and very firm. Bowels opened in the night. Other symptoms as last noted.

17th. Angle of the mouth elevated towards the wounded side. This was not permanent, and he could at any time restore it to its proper position by an act of the will. In all other respects his appearance and feelings are healthful.

The fungus, having sloughed off to a level with the skull, came away

with the dressings this morning, and so rapid was its growth, that before they could be reapplied, it had risen a quarter of an inch. Its pulsations are, and have been, synchronous with those of the brain, which greatly exceed in frequency those of the arteries, especially under the influence of any emotion, when they become so rapid as hardly to admit of being counted. Pulse 70, and more full.

18*th*. More listless to-day. Removed two small fragments of bone which had become nearly detached from the fracture, and a small exfoliation from the external table of a fixed portion of the parietal. Bowels not moved since 2 A. M. on the 16th. Other symptoms as last stated. Let him have a dessertspoonful of castor-oil.

19*th*. Still listless. Oil has operated well. No increase in size of the fungus. The edges of the scalp show a tendency to unite with those of the temporal muscle, which they have not previously done.

20*th*. Has passed an uncomfortable night, having slept but little, and was extremely restless when awake. Consciousness perfect; eyes and countenance natural. Head free from pain and every uneasiness, even when rapidly rotated. Skin heated, and tongue dry and brown. Pulse 120, and weak. Wound discharging an abundant serous fluid. Fetor much lessened. Fungus greatly enlarged. Its upper portion has the appearance of the cineritious part of the brain, while the lower is much firmer, and fibrous. The dura mater much thickened, very vascular, and almost as firm as cartilage.

21*st*. Tongue not so dry as yesterday. Wound discharging profusely the kind of fluid then noted, not less than a pint having run off since last night.

22*d*. Respiration short and hurried. Pulse 130; skin very hot; no appetite. Fungus enlarged, measuring an inch and three-quarters in length, one in breadth, and one in height. Patient rapidly emaciating.

23*d*. Fungus increased in size, and composed of three distinct parts, two arising from the brain and one apparently from the dura mater, all of a dense fibrous structure,—more particularly the last. They adhere slightly to each other, and quickly coalesce after being separated. Serous discharge abundant.

25*th*. Skin dry, but not hotter than natural; mouth parched. Pulse 110, small and compressible.

26*th*. Symptoms, with the exception of a frequent desire to micturate, (often fruitless, and never satisfactory,) same as yesterday. His parents having taken rooms in the village about one hundred yards distant from those which he had occupied since he was wounded, he was removed to them this afternoon without any apparent inconvenience.

27*th*. Has passed the night in short and unrefreshing slumbers, frequently starting and moaning in his sleep. His eyes are glassy and unsteady. Pulse 120, small and vibrating. Skin very hot and dry. At

ten o'clock this morning vomited a small quantity of fluid perfectly blue. During the afternoon and evening more comfortable.

28*th*. Vomited again this morning at ten o'clock, ejecting about half a pint of pure yellow bile. Fungus diminished to one-half its maximum size. Edges of the wound smooth and red. Countenance good. Pulse 100; skin and mouth dry.

29*th*. Has scarcely slept during the night. Countenance. however, pretty good. Pulse 100, distinct, and moderately full. Skin cooler than yesterday. Mouth and tongue parched. No appetite, and very restless.

On removing the dressings this morning, the fungus was no longer to be seen, but the bones, denuded and dead, with the opening in them unobstructed, came directly into view, permitting a more extensive survey of the interior of the skull than, perhaps, was ever before made upon living man. The extent of the cavity antero-posteriorly was estimated at four inches. Transversely the falx-cerebri was visible, and bounded the view in that direction. The outline of the apophysis of Ingratius was seen anteriorly, and that of the edge of the tentorium posteriorly. Pending from the bone, near the posterior margin of the cranial aperture, was a flap of the dura mater, hanging like a curtain into the cavity, and shutting off in a degree the prospect towards the occiput. This may have been the remnant of the more fibrous part of the fungus, as no portion of it was found in the dressings. The floor of this cavity was formed of a thin stratum sloping inward and downward toward the cerebral ganglia, from the lower edge of the aperture in the cranium at an angle of about forty-five deg. Some shreds of the dura mater, detached in part from the internal surface of the skull, were seen hanging into the cavity, as also a few vessels stretching across its walls in different directions, chiefly, however, along the falx.

His eyes are glassy and unsteady. His head is occasionally agitated by an involuntary rotary movement. The parotid gland, on the injured side, is very much swollen. Sensibility and consciousness perfect. No pulsation of the brain.

Several highly intelligent gentlemen were present at the dressing of the wound this morning, whose astonishment, when they first saw the interior of the skull, with so little of its natural contents remaining, could scarcely have been greater if the varied movements of the physical machinery of the mind, impelled by the mysterious power of thought, had have been presented to their view.

30*th*. Has slept very little. Motion of the head almost constant. Pulse 110, small and quick. Much nervous agitation and irregular muscular action. Debility great. Jactitation, floccitation, and toward evening low delirium. The cavity in the skull is filling up, the floor being now nearly horizontal; vascularity much increased.

31*st*. Had a sleepless night. Feces pass involuntarily. Other symp-

toms as yesterday. Within the cranial aperture, about an inch from its anterior margin, discovered an orifice large enough to admit the end of the finger, leading into the anterior lobe of the brain. He complained of the light this evening for the first time, and pushed it away when brought near his eyes. Has been annoyed by "hiccough." Gave him fifteen drops of M'Munn's elixir this morning, with the most tranquilizing effect.

November 1st. As I approached him this morning, he saluted me with a smile. Muscular agitation in a great measure subsided. Singultus continues in paroxysms of from five to ten minutes duration. Became delirious this afternoon.

2*d.* Recognizes no one. Countenance hippocratic. Respiration short and hurried; voice guttural. Muscular agitation of the whole of the left side, particularly of the arm, violent. The muscles of the *paralyzed* limbs were affected by a tremulous shudder. Their contractions were not sufficient to move the members to which they were attached. Lower jaw moves as in mastication. Skin hot, and purple. No discharge from the wound, which is of a leaden colour. Bladder not evacuated for the last twenty-eight hours. Introduced a catheter, and drew off rather more than half a pint of urine. He manifested great sensibility of the urethra during the introduction of the instrument.

As the day advanced, the muscular movements subsided; he moaned incessantly; his skin continues purple and *intensely hot* over the thorax; his pulse became scarcely perceptible; and at two o'clock, he ejected, by a sort of regurgitative effort, a mouthful of yellow fluid, threw back his head, and expired.

The post-mortem examination was made by Dr. Blackwell, to whom I am entirely indebted for the account of the dissection of the brain, and the condition in which he found it; as well as for an abstract of the case, of which I have freely availed myself in the foregoing statement, wherever it is more full than my own notes.

3*d. Autopsy twenty-two hours after death.*—The inferior edge of the cranial aperture was situated at the point of intersection, between two lines drawn, the one perpendicular to the external meatus auditorius, and the other horizontally backward, from the external angular process of the os frontis. Extending upward and backward, its entire length was about an inch and a half, and its width not quite an inch. By removing a circular piece of bone, in advance of this, for the purpose of inspecting the dura mater in situ, it was found to be detached as high up as the origin of the temporal muscle down to the base of the skull, and forward as far as the frontal bone. One part of it hung down into the cavity, very much thickened, and gangrenous.

"The upper half of the cranium being removed, nearly half a gill of sero-purulent fluid escaped through a rupture in the dura mater covering the anterior lobe, which became flaccid and collapsed. A small quantity of

purulent matter was also found beneath the dura mater on the under side of the medulla oblongata. At the surface of the brain, next to the cranial aperture, it was completely destroyed to the extent of two inches all around. The lower half of the middle lobe was also entirely destroyed, with the exception of a thin stratum at its base, not more than a quarter of an inch in thickness, meninges included, which was also diseased. Introducing the finger into the cavity and exploring it, it was found to extend the whole length of the lateral ventricle. Extending the dissection by removing the upper part of the hemisphere above the corpus callosum, two sinuses were discovered, leading from the main cavity. One of these extended into the anterior lobe, was about two inches in length, and half an inch in diameter. It was the orifice of this sinus observed before his death, and from it came the pus which escaped through the dura mater. The other sinus was situated in the posterior lobe, extending upward and backward very near to the surface, just above the torcular herophili, an inch and a half in length. In the bottom of this sinus were found two pieces of lead, very much flattened and indented together, about equal in size to one of the shot with which his gun was charged when he received from it the fatal wound. A spicula of bone, about the size of a mustard seed, was also found here. In the posterior lobe there was not more than a cubic inch of healthy medullary substance, most of it being entirely destroyed, and the rest converted into a semi-purulent amorphous mass. About one-third of the anterior lobe, and two-thirds of the middle were in the same condition. Examining the lateral ventricle, the corpus callosum, as far as the *raphé* on the injured side, was destroyed. The septum lucidum and anterior part of the fornix were also destroyed. The hippocampi were too much diseased to be distinguished. The upper half of the corpus striatum was very much softened; on scraping this off, however, the diverging fibres of the corpus pyramidale were beautifully displayed, spreading out through the gray substance of the ganglion, resembling the striated appearance of our common marine shells. With the exception of the commissura mollis, the thalamus was more healthy. Between the two thalami there was no connection. The vellum interpositum and choroid plexus of the lateral ventricles were destroyed. There existed, therefore, a communication between all the ventricles and the wound.

"The right hemisphere, with the exception of a convolution above the corpus callosum, (which was 'curdly' and friable, and those around its lower external surface, which were inseparably adherent,) was healthy. The cerebellum and those parts described on the base of the brain were all healthy except the corpora albicantia. Between the infundibulum and pons there was nothing to be found like a rounded body or an eminence. Such was the condition of the parts when dissected, which, owing to the softness of the brain when first removed from the skull, was not completed for several days, and during this time it was preserved in alcohol.

"To all who witnessed this case it is a matter of great astonishment that the patient should have lived so long preserving his mental and corporeal functions so little impaired. The right side was paralyzed only as regarded its motion, and that imperfectly. Its sensibility was very little if at all impaired. These phenomena would corroborate the conclusions that the origin of the locomotive influence is in the anterior columns of the cerebro-spinal axis, inasmuch as they were the parts chiefly injured, while sensibility resides in the posterior.

"How was the abolition of the power of speech to be explained? Was it owing to the diseased condition of the cornu-ammonis and temporal lobe, in which Foville locates the seat of this variety of muscular motion?

"In consequence of his entire inability to articulate and the paralysis of his right arm, it was impossible to ascertain the exact degree in which he retained his intellectual faculties. Signs were his only media of communication, and these, it must be confessed, were not always the most expressive in representing the ideas he wished to convey. From the eleventh day after the receipt of the wound, until the second or third before his death, he gave every indication of consciousness and reason. He recognized his friends and took pleasure in their society. Among those who watched and nursed him, he preferred the services of some to those of others. Failing on one or two occasions to make known his wants by such signs as he used, he attempted to write them with his left hand, but after several illegible efforts he gave up in despair. At another time a proposition was made to him in writing, *one* word in which he could not decipher, when pointing to it with his finger to have it explained, he expressed his approbation of the proposal, and gave it his ready assent.

"Prof. Dod once repeated a problem in mathematics to him, a branch of study for which he had no partiality; he shook his head in affected disgust, and playfully expressed a strong detestation of the science. After his removal to his new lodgings, the above gentleman said, in the hearing of Mr. B., that 'from his willingness to the change, he was afraid that the attention which himself and family had been able to give were not satisfactory to him.' He turned to the speaker, and presenting him his hand, a tear at the same time starting from his eye, protested in the most earnest manner against every such feeling, and with affectionate vehemence repelled the imputation. Such are a few of the many manifestations of mind presented by Mr. B. Sufficient, I think, to show that although his reasoning powers *may have been impaired*, they were far from having been destroyed."

Besides the alterations of structure in the different parts of the encephalon, observed by Dr. B., there was, at the time of its removal from the cranium, a whitish-coloured fluid between the tunica arachnoidea and pia mater on the anterior surface of the corpora pyramidalia, extending from the inferior edge of the pons varolii the whole length of the medulla oblongata,

which fluid was partially coagulated by the alcohol in which the brain was immersed previous to its dissection.

In consequence of the large amount of blood lost at the time of the accident and the first forty-eight hours subsequent thereto, the suspension of all nourishment but rice-water, and the profuse discharge from the wound and fungus, the development of active inflammation in the vessels of the brain did not take place, and, therefore, the vigorous use of those measures commonly had recourse to in injuries of this organ, were not demanded, and the treatment being entirely pro re natâ, resolved itself into the use of such means constitutionally and locally as were calculated to allay and remove irritation,—to sustain the powers of life without inordinately increasing their actions. In reference to the fungus, I may mention, however, that twice I attempted to "slice it off," and that my hand was arrested each time by the hemorrhage which followed the removal of the first portion. It is greatly to be regretted that the extension of the injury to the different parts of the encephalon cannot be determined in the order of its invasion of them, and the succession of the symptoms in their relation to this order, as the case of Mr. B. would then be one of the most instructive, as it now is one of the most extraordinary, which the annals of medicine record. On the seventh day from the occurrence of the accident, the secondary symptoms consequent to it were first manifested, and by supposing the irritation from the wound at this time to have just reached the hippocampi, the opinion of Foville will be thus far confirmed, for on the evening of that day articulation became embarrassed, was entirely suspended on the next, and never afterwards recovered. On the ninth, convulsive movements of the muscles of the face and neck occurred, and on the tenth, motor hemiplegia seized the patient, both of which are readily explained upon the supposition, that at this time the corpus striatum became involved. With speculations upon the possible, however, science will not be satisfied. Her stern demand is facts, and having given these, I leave each one to draw such conclusions from them as will be most satisfactory to himself.

Art. IV.—*Observations on the Use of the Sulphate of Quinine in Remittent and Intermittent Fevers, as they occur in Cleveland, Ohio.* By Geo. Mendenhall, M. D., of Cincinnati, Ohio.

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stances which attend the administration of the article, differing in the various sections of our widely-extended territory.

While the directions for its exhibition in southern fevers may be entirely applicable to the disease as found in the south, they may not be appropriate to those of more northern latitudes. On the other hand, the rule of practice founded on northern observation may be fatal when applied to the southern fevers; so much are the condition of the system and disease modified by climate. It is only by being furnished with data from different portions and localities, widely distant from each other, and variable in regard to local conditions, that we can hope to arrive at correct conclusions.

So far as my own observation has extended, and from reliable reports, I think there can be no doubt but that different localities, and different seasons vary the condition of disease, in such a manner that it is necessary to vary our remedies to suit these particular changes, and that the proper use of the sulphate of quinine is not an exception to this rule in its applicability to remittent and intermittent fevers. The reports, therefore, of southern practitioners respecting its use in southern malarial fevers ought to be received with great caution, and with some qualification when we attempt to apply their treatment to cases occurring in more northern regions. Upon their authority the tendency of the profession at the present time is strongly inclined towards the adoption of their practice without regard to locality, latitude, or the epidemic constitution of the season. But little has been published in the north on the subject, and from this fact it is inferred that these southern precepts are of universal applicability, which, in my opinion, is a very serious error. From eight or nine years' experience in a northern malarial district, I do not hesitate to say that the directions for the use of quinine as adopted by most southern practitioners, and in some instances by the northern, on the authority of their southern brethren, are seldom proper or called for in northern fevers either in regard to the period of its use or in the quantity of the article administered. That there are cases in the south, and a vast majority perhaps of them too, which will admit of its early application, without much if any preparation, and may even demand it, and also in very large doses, I am not disposed to deny; yet this does not prove its universal adaptation to all cases of malarial fevers, and under all conditions.

For the purpose of illustrating these differences, I will attempt to describe the form of remittent and intermittent fevers, and their proper treatment, as they occurred in Cleveland, Ohio, and its neighbourhood, from the year 1835 to 1843, inclusive of the years named.

This place is situated on the southern shore of Lake Erie, at the northern termination of the Ohio canal, and at the mouth of the Cuyahoga river.

Without describing particularly its topography, I will merely state that the causes which are generally supposed to be productive of remittents and intermittents exist here to a considerable extent, and they are very common

diseases, particularly in the months of July, August, September, and October. In addition to low stagnant marshes and a sluggish stream, the hills are being cut down in making streets, whereby large quantities of comparatively recent deposit are exposed, and which is one fruitful source of disease.

It is said that while the canal was being made in 1827 and 1828, a fever prevailed of unusual fatality, carrying off large numbers of the workmen and the old citizens of the place. Of the particular character of this fever I am uninformed, except that in fatal cases it seldom continued more than four or five days. Whether this was a form such as occurs in southern latitudes and could have been cured by quinine, I cannot, therefore, say.

I am not aware that the fevers of Cleveland differ in any respect from those which occur in the northern part of the State of Ohio generally and in the State of Michigan, except that, perhaps, the malarial influence may act with more power and concentration at some localities than it does at Cleveland.

Symptoms.—The attacks of autumnal fevers, as they occurred there, were generally ushered in by an irregular chilliness, often accompanied by heat of skin at the same time; pain in the head and loins; thirst; anorexia; an indescribable feeling of *malaise;* costiveness in most cases; often slight tenderness over the region of the liver; eyes mostly somewhat injected, with a yellowish tinge of the conjunctiva; skin often of a yellowish hue; and the urine scanty and high-coloured. These were the usual symptoms in the forming stage. On the following day they were sometimes followed by a distinct chill, fever, and sweating stage, without any violent or protracted symptoms of congestion; although during the hot stage there existed severe pain in the head and loins, and sometimes delirium. The fever sometimes passed off almost entirely after the sweating stage, but not always; occasionally there would remain a dry, furred tongue, headache until the following chill, either on the next day or the day succeeding. In other cases the fever continued with a more or less marked remission, without any distinct chills. Generally the exacerbations occurred in the afternoon and evening; they were not, however, always regular, sometimes occurring in the morning, and sometimes twice a day. The thirst was seldom absent before treatment, even when there was a diminution in the heat of the skin, and in the force and frequency of the pulse, although it might have been somewhat abated. This fact of the continued presence or occasional absence of thirst we considered always important in influencing us in the use of the sulphate of quinine, in all the different stages. During the first two or three days of this last or remittent form, its type might have been changed in many instances to the intermittent by venesection, (which was generally demanded by the local determinations to the head, liver, or mucous membranes,) and by the use of active mercurials, followed by saline cathartics. Frequently, for a

few days the symptoms were such that it was impossible to determine which form would be developed, as there might exist irregular chills, fevers, and even the sweating stage; but with the dry tongue, thirst, headache, and other febrile symptoms continuing.

Here it was that the course of medication often determined the result, whether the intermittent, remittent, or continued forms would be developed.

The intermittent, when distinctly marked, could, almost without exception, be cured very easily by a proper course. Neither were the remittents often attended with a fatal result unless from some cause or other they were changed to the continued. I have occasionally seen cases of the remittent attended with a severe pain in the bowels or some other part, which assumed a regular periodicity, occurring at a particular hour every day. These cases would bear the use of quinine sooner than those where the periodicity was not so well marked. In the remittent form as the disease progressed, unless influenced by proper treatment, the local determinations became more evident. The fever, also, became more continued, or marked with a slighter remission, unless we succeeded in obtaining a more perfect remission, in which case the tongue was cleaner and more moist, the secretions from the bowels were improved, and the sulphate could generally be tolerated. Those cases that ran into a more continued form of fever were seldom, if ever, characterized by a distinct crisis. The disease went gradually on until it had acquired its height, and then receded in the same manner, when it terminated favourably so gradually that it would be impossible to say precisely when a change for the better did take place. The improvement might be first manifested by a change in some one function, while the rest of them remained diseased, which rendered it extremely uncertain whether there was any real change towards convalescence or not. It was not, therefore, until we found several of the functions resuming their healthy activity that we could confidently say a crisis had taken place in the disease. I do not recollect a single case which was marked by a clear and distinct crisis or critical discharge of any kind.

Treatment.—As the use of the sulphate of quinine in the treatment of these fevers was so intimately connected with the other means used, each of which had its appropriate application, I must be permitted briefly to detail the course we generally pursued.

The sulphate of quinine formed a very important item in their management, and could not be dispensed with; but in very few cases could it be relied upon as the only treatment.

Venesection.—In a majority of cases this was borne well, and, in fact, was often clearly demanded, but in some seasons more than in others. It generally produced an abatement of the feeling of fullness in the head and liver, as well as afforded some relief to the feeling of oppression which was felt throughout the system generally. After its employment emetics were

better borne; cathartics operated more freely and affected the secretions more favourably. I am fully persuaded, also, that it was a powerful means of changing the remittent and doubtful forms of attack into the more favourable condition of intermittents. It hastened the period of remission and intermission, and of course sooner brought about the time when the sulphate could be used without risk of producing, or aggravating if they existed, those local inflammations which have always to be guarded against in treating our northern fevers. If these local inflammations had already commenced, it was one of our most powerful means in reducing them, without which the use of quinine would be extremely hazardous. The extent to which it was found proper to carry this remedy was to produce a decided impression, and to do this it was sometimes necessary to repeat it.

Local bleeding.—This was also found very beneficial in lessening the effects of, and removing local determinations. It appropriately followed the general use of blood-letting; and when, perhaps, in debilitated subjects, the general abstraction of blood was inadmissible, this form could always be used when any symptoms existed calling for its employment. Cups were in most cases preferable to leeches.

Emetics.—These were applicable frequently in the early stages of the attack, and could be used advantageously, but they were often omitted, and could be dispensed with in most, if not in all cases. I have not myself been in the habit of using them much, from a prejudice which I contracted against them from witnessing the unfortunate and fatal effects of a large dose of tartarized antimony, but I am not aware that I have been any less successful than other practitioners have been. I frequently used emetic substances in nauseating doses in combinations which will be spoken of under another head, and have thought that the effect upon the secretions was quite as well marked and as beneficial as if given in full and decisive doses.

The effect of long-continued nausea in reducing the force of the pulse, equalizing the circulation, determining to the surface, and acting upon the secretions, is a very powerful means of reducing disease, when properly adapted to the case. The use of tartarized antimony as a depressing agent is second only to the use of the lancet; and it is one of our most powerful auxiliaries in the treatment of a portion of the inflammatory diseases we are called on to manage.

Cathartics.—It appears to me to be difficult indeed, if not impossible, to succeed without the use of cathartics in this class of diseases, in some stage or other, in any climate, whether north or south. Dr. Porter, in noticing them in his very judicious and able report in reference to southern fevers, says that "they are always beneficial;" they were particularly so in these forms of which we are speaking, and in fact were indispensable to success. When constipation existed there was no substitute for them, and in fulfilling the indications of correcting the secretory action of the liver, and the removal of irritating secretions from the alimentary canal, a proper selec-

tion from this numerous class was always necessary. They also acted as depletant to the general system, equalized the circulation, and were useful in relieving and removing local congestions and inflammations. The form of their administration, which we often found useful, was the following prescription:—℞. Hydr. chlor. mit. gr. x; Tart. antim. gr. ss; Nitr. potassæ ʒss; div. in chart. iij. M.—One to be taken every third hour, commencing generally at six o'clock P.M. This should be followed by castor oil on the following morning sufficient to operate actively on the bowels. The effect of this was to produce, almost universally, dark-coloured stools, characterized as bilious; in fact, in many cases the discharges consisted of a large admixture of nearly pure bile. The evacuations from the liver, as well as the corrected state of the secretions from it, effected by the mercurial, very soon produced a change in the appearance of the conjunctiva and skin, with an amelioration of all the symptoms in most cases. When the inflammatory symptoms were not so high, it was proper to substitute for the nitrate of potash and tartar emetic, the Dover's powders. This last combination was frequently very proper, because it often had the effect of allaying the general irritability of the system and disposing to a quiet sleep with a gentle perspiration. In these combinations it will be perceived that by the manner which the mercurial was administered in divided portions, and allowed to remain in the stomach for ten or twelve hours, the alterant effect upon the secretions was more fully secured than if purged off immediately, by union with a more active cathartic. The diaphoretic effects of the other part of the prescription are also more certainly produced by the continued manner of its exhibition, and by being given during the usual period of rest; at which time it is probable that its influence will be exerted more favourably on the skin. This form of administering mercurial cathartics I prefer to giving them simply with the view of the immediate cathartic effect. I think when we administer the more active cathartics a few hours after this course, that the operation is much more free, and the effect on the secretions more satisfactory than when given together. But free active purging was indispensable, and when properly applied seldom or never did harm. Where the bowels were irritable, an anodyne was proper; it first lessened the irritability of the mucous membrane, and coincided in its effects with the cathartic in producing a more healthy secretion from it. Cathartics were always indispensable in remittents, and primary attacks of intermittents, in preparing the system for the use of the sulphate of quinine, at least to permit us to get the full and entire benefit of it, both as to its immediate safety, and its permanent beneficial effects on the system. This part of our subject will be alluded to again when we speak of the particular application of quinine, which will be done more at length in the latter part of this paper. This cathartic, alterant and diaphoretic course was, as a general rule, continued for two or three days, and in fact was found necessary before the

secretions were sufficiently restored, and the local determinations removed, so as to permit the use of this invaluable remedy, after which they were occasionally called for; but a repetition of the mercurial was seldom necessary. When it was, the blue mass would answer all the purposes we wished, and was properly used with the quinine when indicated. In the use of mercurials it was always proper to avoid ptyalism, although a very slight action on the gums appeared sometimes to be useful in effecting a favourable change in the disease. I am, however, strongly inclined to the belief that its slight action on the gums is merely an indication that the system has responded to the action of the medicine, or that a general impression has been made by it upon the secretions, and is not in itself of any importance in a curative point of view.

In the very able essay on remittent fever published in this Journal for April, 1842, by Dr. Stewardson, it is stated that he generally relied upon the blue mass in rather small doses as a mercurial in the fevers which he treated in the Pennsylvania Hospital. It may have been quite sufficient in these cases, but I think the effects of calomel in medium doses, as a general rule, are to be preferred. Some of his cases had taken calomel, however, previously to their admission into the hospital, and in these there was less need for its use.

Diaphoretics were almost always necessary in placing the system in a proper condition to bear the employment of quinine; and as we have before stated in speaking of cathartics, they were appropriately combined with them in the early part of the treatment. It was also often necessary to continue them after we had used cathartics freely, when the tongue remained dry, and the skin hot, with thirst, pain in the head, and full or quick pulse. In selecting a diaphoretic it was necessary to be governed by the condition in each individual case, whether we used antimonials, ipecac., the saline diaphoretics, or the sweet spirits of nitre. When these were continued until the tongue became moist, and showed a commencement of cleaning, we could use quinine profitably, but not until then.

The appropriate use of *alterants* was often necessary after we had used them in conjunction with cathartics, and in these cases they were combined with diaphoretics.

Revulsives.—They were often necessary when there were local determinations or pain in any particular part of the body. Cupping, blisters and sinapisms were generally used.

Opium, in its various forms, was often useful in allaying irritability of the bowels when it existed, and in preventing the calomel from passing off, before it had time to act upon the secretions. It also favoured the action of diaphoretics, allayed the irritability of the system, and promoted natural rest, unless, perhaps, in some few cases, where from constitutional peculiarity, or the particular condition of the brain, it might have had a different effect. It always operated better after the employment of the lancet,

in cases admitting of depletion. Very frequently this remedy was found useful conjoined with quinine; and sometimes quinine could be given with Dover's powders or sulphate of morphia advantageously when the propriety of its use, without this combination, was extremely doubtful.

Diet, drinks, &c.—In the remittent form there was very little disposition to take nourishment of any kind before convalescence took place, after which mild farinaceous articles were found most proper until the lapse of a few days, when the lighter kinds of animal food might be used at first, and succeeded by those of a more stimulating description. The premature use of animal food was very apt to produce a return of fever and its consequences; and sometimes the relapse would be very tedious, resulting in a continued form of fever. In the intermittent there was seldom any disposition to eat in primary attacks, but occasionally a case of some standing occurred where the appetite was voracious between the paroxysms. The drinks proper were the mild mucilaginous preparations, such as barley-water, rice-water, slippery elm-water; and, in some cases, warm thin gruel would tend to produce an action of the skin that was beneficial. The acidulated drinks were also very grateful to the patients in allaying thirst and fever; of these cremor tartar dissolved in water, with or without sweetening, lemonade, tamarind water, &c., were used. Acidulated drinks should, however, always be avoided while patients are taking calomel or any mercurial, as they are very apt to cause salivation. I have known profuse and severe salivation produced merely by taking castor oil in a little vinegar and water, a few hours after taking calomel. Of all drinks, cold water, and even iced water appeared to be the most grateful, and I did not hesitate to allow it in small quantities, (one swallow at a time,) often repeated, say every ten minutes, while I was using mercurials. When the thirst was very great and this frequent swallowing of small portions did not allay it, I would permit the patients to take cold water into their mouths, retain it for a short time and then eject it. In this way much could be done in allaying thirst. So far as I have noticed the effect of cold water in producing ptyalism while taking mercury, depends upon the use of large draughts of it, while it may be taken in small portions, as above, without much if any danger. At any rate I have been in the habit of allowing it in this manner, and I do not now recollect a single case of ptyalism from its use.

Quinine.—I will premise the remarks I have to make on the use of this remedy by stating that the fevers of this region are mostly of an intermittent and remittent character, with some cases of the continued type, and they are often changed from one of these to another. These different forms exist also from the distinctly marked intermittent to the continued, in such gradation that at the connecting point it is impossible to say certainly to which of them it belongs; this is the case particularly for the first four or five days. As before stated, the form which is ultimately developed very often depends

upon the treatment pursued. In the employment of quinine great care was necessary in regard to the time of its commencement, and in the preparation of the system for it, and it was a nice point to determine when it could be used with benefit.

As a general rule a depletory and cathartic course was necessary. These, with the other means which have been mentioned, had to be continued until a decided remission or intermission in the febrile action should take place, unless the system became too much reduced to bear them further. When the periodicity was well marked and the tongue began to clean, quinine could be borne, and almost invariably with advantage. The quantity which we have been in the habit of giving during an intermission or distinct remission was from ten to fifteen grains, dividing it into about five equal portions, and watching the effects of each dose (which were given about two hours apart,) until after the administration of the first two or three. When perspiration followed its use there could be no question of the propriety of its exhibition, and the result was then in all cases satisfactory. On the other hand, when the skin became drier with increased heat, increase of thirst, cephalalgia and delirium, we did not dare to proceed with it. Occasionally it could with great certainty be predicted whether the results of its employment would be favourable or unfavourable; but, as a general rule, if we were unable to see the patient after the remedy was commenced, it was necessary to leave provisional directions in regard to its continuance. If the quinine was borne, it was seldom necessary to repeat it on another day in intermittents, as it scarcely ever failed in arresting the paroxysm. If it did not, the febrile stage of the paroxysm generally ran higher; but the next could be easily interrupted by a repetition of the same course with almost absolute certainty, and even without a repetition of the remedy the paroxysm would seldom return. In remittents we had to proceed with greater caution, the effects had to be more closely watched, and when the remedy was borne, a longer use of it was necessary, but generally in smaller doses. Our experience in cutting short remittents was not near so satisfactory as it was in intermittents.

Patients are generally very anxious to have the paroxysms broken up, and it is therefore desirable to commence the use of quinine as early as possible. When doubt existed as to the propriety of using it, it might often be given combined with some diaphoretic; and of these the sweet spirits of nitre is one of the best, if not the very best. I always use it unless there is the most perfect certainty that quinine will be tolerated without the unpleasant symptoms spoken of. I was first led to its use by the recommendation of Professor Chapman, in his lectures ten or eleven years ago, and I have been highly gratified with the result. I am confident that I have, by conjoining it with quinine, broken up cases of chills and fevers, in feeble and debilitated patients particularly, where the febrile stage ran on without any great abatement until the commencement of the succeeding

chill that must have succumbed to the effects of the repeated paroxysms. But in these cases the preparatory treatment had been instituted, the fever was moderated, the tongue was somewhat cleaned, the secretions were generally more or less restored, and the only indication remaining to be fulfilled was the interruption of the debilitating paroxysms. It was these paroxysms which were wearing the patient out, and not the local determinations, for they were removed. This combination of a diaphoretic with quinine often has the happiest effects; it appears to determine in a great measure the excitant effects of the quinine to the secretory action of the skin, and what under other circumstances might have produced dryness and heat of the surface results in a profuse perspiration like the sweating stage of an intermittent. Here, instead of coinciding in its effects with the disease, a crisis is forced upon it, and the train of morbid associations is broken up.

The dose which we have mentioned never disappointed us in our expectations of its effects when it could be tolerated, and we therefore considered that its employment in larger quantities was at least unnecessary if not injurious.

When it was used before the system was prepared for it, the danger consisted in converting an intermittent into a remittent or continued fever, and in the case of remittents there was great liability of their being converted into the continued form. In such cases we had inflammatory determinations to the brain, and other local inflammations. The fever thus converted into the continued form was with great difficulty controlled by medicines; the local determinations were developed or increased; the patient would not generally bear the use of the lancet, and our hands were in a great measure tied. I am confident that I have seen cases conducted to a fatal termination by the too early use of quinine, which in all probability might have recovered by the use of other means. In that region we seldom or never had cases of the sudden and alarming character which we have reports of from the south; few or none ever died in the paroxysm, but when death did take place it was nearly always from a continuance of the fever, and from the local inflammations that were developed during the progress of the disease; and unless there was *well-marked* periodicity, the use of the sulphate of quinine generally did harm.

The reports of southern practitioners are opposed to this course of treatment and these views, which they characterize as "behind the age." They claim to be correct, which doubtless they are when their treatment is applied to southern fevers, or even to fevers more northern, when they are characterized by the peculiarities of those fevers, instances of which are described by my friend, Dr. Parry, of Indianapolis, in the July number of this Journal for the year 1843.

It might be an important inquiry to ascertain whether even these forms might not be cured with smaller portions of the medicine; but it is an in-

quiry I cannot solve. Medicines should be administered with a view to a particular object, to fulfil an indication or indications,—to produce a decided effect,—and we should use them in such doses as will accomplish this; but, when this is done, we ought not to go beyond it, or perhaps we may produce disease by our therapeutic remedies worse than the one we are trying to cure. This error has already been committed in the excessive doses of the great Samson of the materia medica, calomel, recommended by our southern brethren. Their confidence in it was not much if any less than it now is in sulphate of quinine, and if I am not greatly mistaken, those practitioners of the north who adopted their practice had good cause to repent it. It is to warn them against this error in the indiscriminate use of the present very valuable remedy, sulphate of quinine, that I would insist here.

It is, however, principally to the applicability of their treatment to the fevers of the north, as they generally occur, that I am opposed. Here the system is not depressed, the diathesis is inflammatory, and the continued type of fever is much more apt to be excited. There, there is a great depression of the nervous influence, the periodicity of the disease is strongly marked, and the local complications are such as would be excited by great prostration of the system. This was also the case with the fever described by Dr. Parry, but these are far from being a true type of the majority of the northern fevers. They are confined to particular localities where the causes which produce them operate with peculiar violence, and exhaust the nervous energy with great rapidity.

The *excitant* and *anti-periodic* effects of quinine render it peculiarly applicable to the condition of system existing in these southern malarial fevers, and also in fever where similar symptoms are exhibited. In them the system is overwhelmed by sudden disease, and it must be immediately counteracted, or death will ensue in the paroxysm. The concatenation of diseased actions has not yet taken place; it is, therefore, to this sudden prostration and oppression that our remedies must be directed, and fortunately we have that remedy in the sulphate of quinine. As we have endeavoured to show in the preceding part of this paper, the fevers of the district we have endeavoured briefly to describe are of a different kind. The attacks are more gradual, and present a forming stage, in which the complications soon occur, and require at once the main artillery of our treatment. A partial acknowledgment by some of the southern army practitioners of the views we have here expressed, is made by their admission in regard to northern recruits, who, they say, will not bear quinine well in their first attacks of fever in the south; and this position attains still more strongly when they are attacked and remain in the north, where the system has not undergone, in any degree, the effects of southern exposure and influences.

In regard to the propriety of the use of quinine in northern remittents

and intermittents, under proper restrictions, there can be no doubt; in short, it would be impossible to treat them successfully without it. It is the great *anti-periodic* remedy of the materia medica, not only applicable to remittent and intermittent fevers, but to all cases, under proper regulations, where there is periodicity. But the proper use of mercurials is generally necessary to place the system in a situation to get its most beneficial effects. They go hand in hand, and he who would strike either from our list of remedies, inflicts upon us an injury that cannot be repaired by the substitution of any others in the whole catalogue.

When quinine was given prior to the correction of the secretions, its effects appeared to coincide with the tendencies of the disease, while if the system was put in order for its use, it counteracted the train of morbid associations. To my own experience, and that of most northern practitioners, I am happy to add that of Professor Kirtland, of the Cleveland Medical College, who has had about twenty-five years' experience in the treatment of these fevers; and it is also known that he is a close observer of the effects of remedies. In speaking of the fevers of northern Ohio, he says, "in regard to the coinciding tendencies of bark and its preparations, in malarious disorders, if used before the morbid action in the hepatic system has been changed, and a proper condition of the whole system established, they are too evident to admit of a doubt."

In this Journal for October, 1841, there is a paper by Professor Flint, of Buffalo, in which he speaks of the use of quinine in large doses in intermittent fever. From the fact that he, as a northern physician, highly extols the use of the remedy in large doses, without much, if any preparation, it might perhaps appear to be judicious practice in other than southern intermittents. But there are circumstances in regard to the cases treated by him, which, when taken into account, materially modify our conclusions when we attempt to apply his treatment to general practice. He says that "the majority of cases of intermitting fever which occur in this city" (Buffalo) "are contracted in other localities: that the quantity of malaria seems to be insufficient to induce an attack, excepting in those peculiarly predisposed, or in conjunction with other concomitant circumstances. Not having resided in any locality where the disease is endemic to a greater extent than here, I cannot speak of the success of remedial measures, when the patient is exposed to the continued concentrated action of the morbific principle."

The cases, therefore, which he treated in Buffalo were of foreign origin, being mostly recruits in the army from Michigan and the northern parts of Ohio, where they contracted the disease. I understand him to use the sulphate as *the* remedy to cure intermittents, without any preparatory treatment, and prefer it in this way both for the interruption of the paroxysms, and its permanent curative effects. Now it will be understood that nearly or quite all the cases which he treated so successfully with large doses of

quinine without preparation, contracted the disease at some other place, and that in their removal to Buffalo they were removed away from the "continued, concentrated action of malaria." In these cases, then, one curative means was complied with, which of itself is often sufficient to accomplish a cure, viz., a removal from the cause of the disease. As the patients took the disease at some other place, a considerable time necessarily elapsed from the first attack, before application was made to him; or else it was a relapse from a former attack brought on by fatigue or some indiscretions, which are very common among soldiers. If it was the first attack, then time was given them in traveling to Buffalo, to avail themselves of those preparatory means which we have recommended, and which are so well understood in these districts, that they are very often used without application to a physician; and no doubt but that in ninety-nine cases in a hundred, resort was had to them in these cases, whether in the army or out of it, and if so, this preparatory treatment was nevertheless resorted to, although not advised by a physician. The system, then, in these cases, was prepared, and the quinine acted favourably. His large doses may or may not have done harm, but they were at least, I conceive, unnecessary, as I have repeatedly seen the effects of it quite as favourable in less than one-half the quantities, and that in malarial districts, and under its concentrated influence. The probabilities are that, in the majority of his cases, they were relapses from intermittents previously had, either the same season, or perhaps during a previous year. In all cases of intermittents there is an intermittent diathesis or disposition to periodical attacks set up in the system, which continues in some cases for years, and is liable to be called into play from very slight causes. This applies not only to the development of a relapse of intermittent fever, but other diseases may attack the system and observe this law of periodicity, such as neuralgia, &c. &c. Under these circumstances periodical attacks are easily induced, and without that derangement of the secretions and local determinations which almost invariably attend primary attacks of intermittents.

Persons familiar with districts where intermittents originate, will recognize the frequency of this kind of cases at once. A dose or two of quinine will break up the paroxysm, and unless the secretions are unusually deranged, or there is some inflamed or enlarged organ, little or no cathartic medicine is called for. The liability to relapses is much diminished also by a removal from the district where the poison is generated. Therefore let the paroxysms be interrupted in whatever manner they may, there is much less liability to a recurrence of the disease, unless from the most manifest imprudence. This I believe is the true explanation of the success of the treatment as adopted by Dr. Flint, in a region as far north and situated as Buffalo. Dr. Flint in his paper says, "we are to be guided by the considerations which will arise from the following inquiry:—Will the excitant properties of the tonic," as he calls it, "tend more to

exaggerate the accompanying disease than the series of morbid actions which constitute the paroxysms of fever?" His answer is in the negative in nearly all cases. I must here differ from him in the general rule in northern fevers; although I admit that perhaps cases may happen occasionally where it would be otherwise, but these can generally be distinguished by the nature and violence of the paroxysms. In most cases of northern primary attacks the local determinations and fever precede even the first regular paroxysm, to a considerable extent; and the condition which is opposed to the immediate use of quinine occurs before the paroxysms are developed at least with regularity. His favourable experience can very easily be explained by considering the kind of patients which he treated and the circumstances attending them. Of one thing I am quite certain, that his experience is opposed to that of almost or quite the entire mass of the profession practicing in northern districts, where the disease is generated. I have myself often seen the symptoms previously mentioned, supervene on its use by being ventured upon at too early a period, or prior to a proper preparation of the system for it. I know of no disease upon which the effects of proper remedies are so certain and satisfactory as in intermittent fever. The effect of every mercurial cathartic in the beginning of the disease is clearly visible in the improved appearance and removal of the yellowness of the eye and skin, in the improvement of the secretions; in the equalization of the circulation; in the cleaning of the tongue; and in the general improved appearance of the patient. At this period quinine comes in, raises the drooping energies of the system, puts a stop to the paroxysm, and the patient improves rapidly from that moment. Here is no room for skepticism in regard to the action of remedies; the effects of every dose are apparent, and take place with that certainty that you can predict beforehand what will be the result, and assure your patient of it. I would not dispense with either mercurials or quinine in these diseases; take away either of them and you are crippled in your curative process; and use either of them out of their proper adaptation and you may do much harm. They are not specifics, either of them, in any particular disease, but combine them properly in the treatment of malarial fevers, and you can almost with certainty cure them.

In preventing a recurrence of attacks of intermittents quinine and bark are often useful. For this purpose I generally use the tincture of cinchona combined with that of gentian and serpentaria, in which is put sufficient aloes or rhubarb to keep the bowels in a free, soluble condition.

In some cases I have used the quinine with small portions of blue mass and aloes or rhubarb for the same purpose: these to be taken in sufficient quantities to keep the bowels quite open, but not so as to purge actively. This will generally prevent subsequent attacks, unless there is some very great dereliction from a proper course of living and exercise by the patient.

ART. V.—*Some Observations on the Effects of Sulphate of Quinine on the Pulse.* By GEORGE MENDENHALL, M.D., of Cincinnati, Ohio.

G. M., ætat. 31. Dec. 20th, 1845, 4 o'clock P. M. Thermometer 56° Fahrenheit. Pulse 72 lying, 77 sitting, 96 standing: took two grains of sulphate of quinine. 4½ o'clock, half hour after taking it, pulse 74 lying, 80 sitting, 100 standing. 5 o'clock, pulse 67 lying, 79 sitting, 95 standing.

Dec. 23d, 3½ o'clock, two hours after a hearty dinner, thermometer at 60°. Pulse 72 lying, 77 sitting, 92 standing: took 5 grains. 4 o'clock, half hour after, pulse 76 lying, 83 sitting, 101 standing. 4½ o'clock, pulse 75 lying, 82 sitting, 95 standing. 5 o'clock, pulse 70 lying, 77 sitting, 86 standing. 6 o'clock, pulse 70 lying, 76 sitting, 87 standing.

Dec. 29th, 1½ o'clock, half hour after dinner, thermometer at 60°, pulse 71 lying, 77 sitting, 98 standing: took 10 grains. 2 o'clock, half hour after, pulse 78 lying, 88 sitting, 103 standing. 2½ o'clock, pulse 71 lying, 80 sitting, 101 standing. 3 o'clock, pulse 68 lying, 80 sitting, 100 standing. 3½ o'clock, pulse 66 lying, 78 sitting, 98 standing. 4 o'clock, pulse 66 lying, 79 sitting, 98 standing. 4½ o'clock, pulse 66 lying, 79 sitting, 98 standing.

January 2d, 1846. 2½ o'clock, 1½ hours after dinner, thermometer 60°: took 20 grains of quinine; pulse then before taking it 72 lying, 77 sitting, 100 standing; 10 minutes after, 82 sitting, 15 minutes after 84 sitting; 20 minutes after, 85 sitting; 25 minutes after, 86 sitting. 3 o'clock, half hour after, or 30 minutes, pulse 77 lying, 85 sitting, 107 standing. 3¼ o'clock, or 45 minutes after, pulse 80 sitting. 3½ o'clock, one hour after, pulse 76 lying, 80 sitting, 102 standing. 3¾ o'clock, or 75 minutes after, pulse 80 sitting. 4 o'clock, 1½ hours after, pulse 75 lying, 80 sitting, 100 standing. 5 o'clock, 2½ hours after, pulse 75 lying, 80 sitting, 98 standing. 6 o'clock, pulse 80 sitting.

In all cases the pulse was increased in fullness and hardness, even when it decreased in frequency. When ten grains, and also twenty grains were taken, the ringing in the ears was very great, with some considerable deafness for several hours. Also a general feeling of the body, such as would be excited by riding on a rail-road car.

ART. VI.—*Case of Double-Headed Monster,—delivery without Mutilation.* By M. D. G. PFEIFFER, M. D., of New Oxford, Adams Co., Penna. With introductory remarks by C. D. Meigs, M. D., Prof. Midwifery, &c., in Jefferson Med. College, Philada. [With a wood cut.]

SIR.—I beg leave to send you a paper handed to me lately by its author, Dr. Pfeiffer, of New Oxford, Adams Co., Penna. Having brought to this city a fœtal monster, which he describes in his communication, and of which the accompanying figure is a good representation, I procured a portrait of it to be made by John Neagle, Esq., from which the present figure is engraved.

Such a specimen of monstrous development, were it properly dissected, would be highly interesting, as affording support for an argument against the theories of such formations in the works on Transcendental Anatomy;—but undissected, it presents little of interest beyond that which is connected with the inquiry as to how such a creature could be born without mutilation, seeing that two large heads are attached to a single trunk, without any division of the trunk.

To any person at all familiar with the phenomena of labour, I presume it would be apparent that such an one as this presents the very anomalous difficulty of a shoulder presentation, in which the common "indication" of *turning, to deliver by the feet*, could by no means be adopted, or carried into effectual operation, since the shoulder presentation could not exist until after the delivery of the first head, after which the shoulder presentation would inevitably be met with. Now, in order to *turn* and deliver by the feet, it is necessary that the shoulder should recede or rise upwards as the feet and breech descend, which could not happen in this case, because the shoulder would be tied to the superior strait, or within it by the head already born, which could not re-enter the genitalia in order to allow the shoulder to retreat from the strait; while, on the other hand, the second head could not engage in a pelvic strait already filled up with the shoulder.

In such a predicament it must be obvious that the indication would be to promote or to compel the mechanism denominated "the evolution of the fœtus," which consists not in *Turning*, in its true acceptation, but in the

descent of successive portions of the thorax, abdomen, and pelvis, with their successive extrication in the order named, until the pelvis of the child being born, and the thighs, and legs, and feet afterwards in succession set at liberty, nothing remains but to deliver the last shoulder and the second head, which completes the delivery by the process usually called, as before said, the *spontaneous evolution of the fœtus.*

You will find by Dr. P.'s letter that it was in this manner he effected the discharge of his duty in the case, and he deserves the credit of having promptly seized and effected the indication of the cure.

It is worthy of remark that this particular case of double-headed monster, the *monstre acomplexe* of Serres, is rendered uncommonly interesting in an obstetric point of view by the fact that both heads spring from shoulders common to both of them, which rendered the labour more difficult and hazardous, as involving the sole hope of delivery by either evolution or decapitation. In the celebrated case of Rita Christina, who had four arms and a double thorax, the birth must have been much more facile, though it was, in all probability, effected by evolution, inasmuch as the evolution would not be difficult after the birth of Rita's head, shoulders, and arms.

If you have no objection, I will offer you the remark that this is not in fact a child with two heads, as might be readily conceived by inspection of the engraving, but two children, each of which has lost a leg, half of its body, one testis, half its rectum and bladder, colon, cæcum and ileum, the right child having added its halves to combine with the left halves of its brother. A dissection alone would show whether there be two stomachs, or two half stomachs united into one; two hearts, or one heart, of which the right auricle and ventricle belong to the right child, and the systemic auricle and ventricle to the left child. The specimen is also rare on account of this, namely: in these monstrosities it usually happens that the union or combination of the two children takes place from the liver upwards, or from the liver downwards, making what M. Serres calls *monstre complexe* in the former, and *monstre acomplexe* in the latter case. This specimen, it is true, is a *monstre acomplexe*, although from the fact that the union extends so very high it almost approaches to the state of the "*complexe*" monster of that distinguished philosopher and medical savant.

You are well aware that in the embryonal state, at its earliest phasis, the mammiferous, as well as the other classes, consists of two symmetrical halves, which, by their equal and equable development, result in the production of the individual. It is true, probably, that in all examples of the fusion of two embryos, the mutual penetration and loss is governed by either the umbilical vein, or the umbilical arteries, and that when the mutual penetration affects the head and thorax, we shall always find the union to extend in strictness not below the region of the liver, giving rise to two children, each with half a head united, by mutual penetration and loss,

into a single perfect head and trunk, but each one retaining its own abdomen, pelvis and legs; or, vice versa, there will be, if the penetration occur from and below the region of the liver, only two legs, one pelvis, one abdomen, with two thoraces, four arms and two heads. I make these remarks in order to attract your attention to the rarely great extent of the mutual penetration and loss in Dr. Pfeiffer's fœtuses, and to suggest that had it gone on to the extent of combining the two necks and both heads, we should have had a single fœtus composed of the two symmetrical halves of two distinct individuals. One having lost its left and the other its right symmetrical half, or having exchanged it for the symmetrical half of its brother. Had these children of Dr. P.'s been male and female, say the left one female and the right one male, they would undoubtedly have exhibited the hitherto unknown spectacle of a true *Hermaphrodites and Salmacis*, or a human hermaphrodite.

The germinal membrane of the ovum is probably, when the germinative act has begun, of an oval or elliptical shape, as it is in the Aves, and it is very curious to observe that one extremity of this ellipse, after the first longitudinal incurvation takes place, exhibits the first traces of the brain, while the opposite pole presents the earliest traces of the pelvic or caudal extremity of the new creature. But this elliptical germinal membrane or blasto-derm is unquestionably composed of two symmetrical halves, united in their mesial line, and afterwards destined, by their lateral incurvation towards the vegetative or inferior surface, to include within their future cavities the organs whose rudiments first begin to show themselves upon the surface while still perhaps nearly plane. This sort of polarity, if I may so express it, of the blasto-derm, appears to be a fixed principle of the development-power of the said blasto-derm, since all the powers of vital chemistry are incapable of causing the development of a pelvis at the head pole, or of a head at the other. No leg or foot could possibly be protruded from the place appertaining to the arm, nor an arm from the place of the thighs. The heart must exist in the supernal, and the bladder and the reproductive organs in the inferior region; so there is reason in fact to assign a species of polarity to the development power of the germinal membrane or mass. If this idea be well founded, then it must be equally true, we have a right to infer it, that the germinal membrane will fulfil its law, and that law cannot be the subject of mere accident. But if it be obedient to a fixed law of development, where shall we look for support of the notion, not a little current, that the germ is male and female, and that the embryonal mass, nay, the very embryo itself is, up to a certain stage of its development, male and female; or I should prefer to say non-sexual, its elements taking on the movements that determine the male development, or those that determine the female development, as the case may be, but never producing the organs of a male in combination in the same fœtus with those of the female sexual parts! so that we have no likelihood of seeing a sincere case of hermaphrodism.

Let me repeat that Dr. Pfeiffer's monster is united so high up that it is almost wonderful that the combination did not extend to the necks and heads; had it done so, we should have had two brothers united in the same delivery, each bringing half his encephalon, spinal cord, thoracic and abdominal viscera, as well as his organs of sense and motion: now, if the germs are male and female in the acini of the ovary, then the mutual penetration of a male and female germ might result in the evolution of a creature male and female, or a monœcious human being. If a hermaphrodite should be proved to have been born, it ought to be considered as proof that the original germs are male or female.

I am, sir, your faithful servant,

CH. D. MEIGS, M. D.

Feb. 15th, 1846.

Dr. I. Hays.

Case.—*August 21st*, 1844, 5 o'clock, A. M.—Mr. L. called on me to see his lady, in labour with her eleventh child.

She is in her 43d year of age; 4 feet 9 or 10 inches high; of fair complexion; gracil in bone and muscle; enjoys general good health; has given birth to ten children, all now living, of which the oldest is in his 20th year, the youngest in the 19th month, and all (4 sons and 6 daughters), remarkable for symmetry and beauty in form and features.

Her pelvis may be called perfectly normal in every diameter, and the coccyx is highly movable; so that her tenth delivery, and, according to her account, every former one, except the first, terminated naturally in from three to four hours after the first sensation of labour pains.

I had seen Mrs. L. the first time, immediately after the birth of her eighth child, on account of highly-inflamed hemorrhoidal tumours, protruded and strangulated. A proper prophylactic regimen and treatment have prevented the recurrence of any inconvenience arising from the still existing status hemorrhoidalis, in her subsequent deliveries. At her ninth delivery, I had to use the forceps to correct an oblique position of the otherwise normal head of the child.

A few minutes past 6, I found Mrs. L. as well as usual; the excreting organs in a proper state, and the whole body healthy; the contractions of the uterus, which had commenced about two hours before, were now repeated in from ten to twelve minutes, gradually, but quietly increasing in vigour and duration; but the still shorter intermissions perfectly painless. Mrs. L. mentioned that she had felt for the last two months more heavy, and was easier fatigued, than on former similar occasions; also, that the liquor amnii had commenced passing two days ago, she being engaged in washing, and that it had continued to do so till last evening, but that she had not had any sensation of pain.

On exploration, I found the genitalia dryer than usual. The head of the child was felt in the oblique diameter of the superior strait, presenting in the first regular head presentation of Baudelocque, viz., the posterior fontanelle high in the neighbourhood of the left obturator foramen; the sagittal suture tending towards the right sacro-iliac junction, while the large fontanelle stood too high to be felt. The os tincæ was fully dilated; the presenting bones of the cranium sufficiently movable, and the size of the head seemed not to exceed the medium.

About fifteen minutes had elapsed, when I observed by the expression and deepening colour of the face of the patient, the approaching pains, and proceeded to a second exploration, when my hand, at the distance of at least an inch from the external organs, was met by a small stream of warm fluid, projected as if it came from a syringe. Immediately looking up to the face of my patient, I saw it of a deep red colour, such as but rarely occurs in severe labour of first births; her teeth clenched, and her eyes glassy as if they were about to start from their sockets. My warning "not to press so," was met by the protestation that "she could not help it;" her hands she held clenched, and her feet pressed against the footboard of the bed. But instead of the expected rapid descent of the head, with danger of laceration of the perineum, my exploring right hand found the head exactly where it had been first, only, (what E. V. Siebold says he judges, for good reasons, to be impossible, until he had seen it,) a perfect *ear presentation* instead of the sagittal suture; the left ear in the central point of the os tincæ. And, at the same time, my left hand examining the abdomen, discovered the uterus of a stony hardness, and felt through the thin muscles, and slightly-adipous skin, with the greatest distinctness a *second head*, near the left anterior inferior spinous process of the ilium, and on the opposite side, a little higher up, a foot or knee; the placenta was plainly felt to the left, and above the umbilicus. It appeared to be a twin case, the one presenting having its body upwards behind the placenta, and being perfectly locked over the neck by the other lying transversely, the liquor amnii completely or nearly escaped; (a case witnessed by myself a few years ago in a first birth of a woman forty-two years old, the liquor amnii had passed away a few days before.) A remission of contraction caused a turning of the head, under my finger, upon its longitudinal axis; the ear disappeared. and the presentation was the same as found on the first exploration. Although now but a small increase of vigour in the pulse was perceptible, the speedy recurrence of the alarming symptoms, with imminent danger of rupture of the uterus was to be apprehended, and the application of the forceps was attempted, but I found it impossible to pass the male blade on account of the firmness (as it appeared), wherewith the neck and shoulder of the *transverse* lying child was pressed down upon the one which presented. An unsuccessful trial to move upwards the locking child was made. Labour recommenced with the same force as before, and produced the same effect, viz.: rotary motion of the head, and ear presentation without any descent of the child. Levret's forceps (taken before), was now exchanged for Osiander's non-fenestred forceps, on account of the greater smallness and thinness of the blades, easier (for me, at least,) to apply in difficult cases, and the male blade was passed and fixed directly under the symphysis, as in cases of transverse presentation; the female blade applied. of course, very easily, and on turning, in making the traction, the head about 60° round, into its regular position, not a very strong traction was necessary, in connection with the labour, to pass the head through the lower strait, and the forceps dropped loose; but the head, having actually left the pelvis, was found remaining in the vulva, the neck firmly pressed against the symphysis pubis; an intermission of labour immediately following, though the face turned gradually towards the left thigh of the mother, but remained concealed by the protruded labia. The right shoulder was found in the middle of the pelvis, and the right arm developed, when the hand reached just out of the os externum; but moving down of the left

shoulder from the upper margin of the pubes, or to move the same in any way, was impossible. Labour now recommencing, and rapidly increasing nearly to the former violence, without effecting any moving of the child downwards, the exploring finger discovered behind, towards the sacrum, a point of the other head (tip of the nose? ear? the chin?); in carefully passing and repassing with the exploring finger, it became clear that there were duplicatures of the violently compressed skin, but a continuation from one mouth to the other, with no rudiment of an arm or clavicle between the two heads, and the diagnosis was clear. "Two heads and but one body," the unborn head, as felt through the integuments of the abdomen, apparently of the same size as the one extracted, and the body lying where I had found it before the birth of the first head, only the neck stretched more apart as at that period, and the inferior part of the body lying a little lower than the unborn head, but not the least descending during the most energetic labour. Delay was dangerous; rupture of the uterus every moment to be feared. *Decapitation* and *turning afterwards* presented itself first; but the high position of the child, with its neck so closely wedged to the pubis; the still remaining possibility of finding, even after successfully performed operation, turning impossible, and further dissection the only sad resort, rendered a gloomy prognosis, still more so, because I had no decapitator; but, under the urgency of the singular case, a probe-pointed bistoury was already opened, when, (recollecting a remark of the afore-mentioned Siebold, made in my presence at Berlin, in 1815 or 16, concerning the largest diameters of the pelvis through which the children successively pass,) it occurred to my mind *that the diameter from shoulder to nates, doubling the abdomen, would not exceed the long diameter of the child's head!* And that, therefore, if the body could gradually be brought, right to left, in the large diameter of the pelvis and lower strait, the same might slide over the perineum, and the second head be born as in foot or breech presentations; the whole process similar to what has been described as spontaneous evolution in some lateral presentations. The right hand was, therefore, introduced as far as possible, and I found much room in the cavity of the sacrum, but my exertions to bring the body down into it were abortive. The pectoral part of the body, as it fell in a diagonal plane, passing from the right side of the neck of the left head to the right hip of the body, was standing low, but firmly in the oblique diameter of the upper strait. I therefore returned to my forceps,—introduced the male blade up the breast of the child in the direction of the left shoulder as far as I could; then the female blade along the back in the same direction, so as if to lay hold of a head offering in the first position, when I could, of course, not lock, the female blade reaching higher than the male,* but if the stem of the female blade is led across the *old* lock of Osiander's forceps, and resting against the pivot on which the plate closing the lock turns; (the reader making the trial with that forceps will find, that a tolerably firm hold may be caught of a subject, one blade protruding even two to three inches before the other;)—I then, with a firm hold and traction, pulled towards the sacrum, with such good effect that the nates descended low enough for me to lay the forefinger of my left hand over the inguinal portion of the right side of the child, to secure with the thumb laid round the right thigh, the foot of the

* The point of the male blade had been put (as could be seen by a dark stripe for several days observable on the body after delivery,) against the scapular end of the clavicle, just before the shoulder joint of the left shoulder, and the female blade over the spine of the scapula of the same side.

same leg, which lay drawn up and bent in the knee, and then, pulling gently and steadily, first towards the os coccygis, then over the perineum, succeeded in sliding the breech of that side over the same, and to develop the foot without any laceration of the indeed highly expansible perineum, so that now the exact centre of the child stood in the largest diameter of the lower strait; I now passed the fore-finger of my right hand over the inguinal portion of the child, laying hold of the foot with the thumb, as above, and passed the whole breech over the perineum without injury; after which, the portion of the child now occupying the *lower* aperture, was the opposite to that which occupied the *upper* strait before I took hold of the body with the forceps, viz., what falls in a plane, dividing the body from the lowest part between the two heads to the lower part of the left side of the chest. The left arm, found on the breast, was next brought down, and the left head descended into the pelvis, when, the chin having been too soon moved from the breast, and the head standing with its largest periphery in the pelvis, a third application of the forceps was necessary, in order to complete the extraction of the child. The right head rose (immediately on the drawing of the body into the pelvis,) up outwards on the left side of the symphysis pubis, in proportion as the body descended, passed over the symphysis, and was lying right of the same when the second head left the pelvis.

After detaching the child, the placenta appeared in the vagina, and came away immediately after, followed by some blood, but not in greater quantity than usual in regular deliveries. The mother was placed in bed nearly fifteen minutes before seven, ten to twelve minutes after the second application of the forceps was resorted to, and passed her puerperium as well (she contends better), than ever before, being out of bed during the whole day from the fifth day after delivery.

The child proved to be a monstrosity of very singular beauty and perfection. When examined, five hours after birth, I found its weight 9lb 2½oz, its length, from the vertex of each head to the sole of the feet, 19¼ inches. The diameters of the heads (both covered with considerable chestnut brown hair), are perfectly alike, viz., the short diameter (from one parietal protuberance to the other), three inches four lines; the large diameter (from the middle between the areas superciliares to the posterior fontanelle), four inches six lines. The oblique or largest diameter (from the spina mentalis to the most elevated part of the os occipitis), a little above five inches.

The posterior fontanelle is nearly closed, and the frontal bones movable (in both heads alike). The width of the body over the shoulders is six inches and three-quarters, under the axilla five inches, over the hip the same (five inches). Distance from the lowest point between the two heads to the symphysis pubis six inches and a half.

The necks with their vertebral column from each head to its seventh vertebra colli are perfectly normal. From the first dorsal vertebra downwards, are the transverse processes at the inner sides of the two columns united, and protruded backwards in a pointed angle, and appear under the finger as the following figure ∾ made of wood would be felt through a cloth drawn over it, and the last dorsal vertebra.∾ The transverse processes at the outward sides of the columns are distinctly felt to be normal. The first lumbar vertebra (single) is broader than usual, feels in the middle rather concave; the second normal. One regularly formed and regularly inserted scapula is found at the outward side of each vertebral column.

In front of the body the sternum is felt between the two clavicles, half as broad again at the top as regular, but not longer. The two clavicles are regularly shaped and inserted. The rest is perfectly normal and proportioned. A regular umbilical cord, (placenta of middle size, I think, which to examine nearer was forgotten at the moment.) The male external genital organs (scrotum with the left testicle only descended and penis) of the size and perfection as in other full-born infants. The upper and lower extremities of a grace and symmetry pronounced by artists *truly antique*, only the left foot has a slight indication of a varus, drawing the sole of the feet very little inwards and upwards. The face of the right head was immediately after birth of a blue colour, bloated, and had evidently died of suffocation. The face of the left was pale, natural, and appeared as that of a still-born infant having died from syncope; still the similarity in the fine formed features could not be overlooked at that time, but now, after the lapse of six months' preservation in alcohol, where the first born head is as pale as the other, the similarity is perfect.

That the fœtus is full-grown, and had lived up to the time when the first head left the pelvis, is evident from the perfect evolution of this fantastic production of nature's plastic art, and from the suffocated appearance of the first-born head, besides which, the mother declares that she felt life even during labour; yet, and if exertions were made to breathe by that head, when between the labia, and the fœtus has but one heart, (as I think to be the case,) the time of death would be fixed at a period very shortly after the first head had left the pelvis, and, moreover, the syncopic pallor of the other head be explained.

Some meconium had escaped and coloured the nates, but not more than in almost every detained passing of the trunk through the pelvis, and had not death occurred *before* the body passed the same, the child might have been born alive (I should think), as easy as in any other breech or foot birth.

Might not, then, in many cases of side presentation, that evolution which nature sometimes successfully accomplishes *without* our interference, to the easier preservation of the mother, and of the child more so, be effected *artificially* even with less pain and danger, if circumstances admit, than turning? When turning is impracticable, there can be no doubt that a trial ought to be made (child dead or not) before embryotomy is attempted.

As a closing remark I would add, that those writers on obstetrics who contend that in spontaneous evolution the child's head does *not* rise in the uterus, have here a case which proves that that evolution is at least *possible* without the rising of the head in the uterus, for here the head *could* not rise.

ART. VII.—*Isopathia: or the Parallelism of Diseases.* By JOHN M. B. HARDEN, M. D., of Liberty County, Georgia.

IN resuming the subject of the parallelism of diseases, "I feel like the clown who, after several unsuccessful attempts to play upon a violin, threw it hastily from him exclaiming, at the same time, that there was music in

it, but that he could not bring it out."* I have waited thus long in hopes of being better prepared to follow it out, but limited as my own field of observation is, and must necessarily continue to be, and restricted as I am in my researches into the recorded experience and observations of others, I fear that that time may never arrive, and I have, therefore, determined to throw out the following remarks as *hints* and *suggestions* towards the development of the Isopathic Law.

Before proceeding farther, however, in order that I may be clearly understood, I beg leave to make a few preliminary remarks; forewarning my readers at the same time that, although many of the principles advanced in the following pages are of a debateable character, I shall have to assume them as postulates for the present, holding myself ready, upon proper occasions, either fully to defend, or freely to renounce them.

The defects of all nosological systems hitherto attempted are readily seen, and will be as readily admitted by all. The most superficial examination will serve to show that diseases the most closely allied, have been violently forced asunder, while others, equally distinct, have been grouped together under the same family or specific designation. This has, no doubt, arisen as much from the intrinsic difficulty of the subject itself, as from the exclusive methods which have been adopted as the basis of classification. Disease, abstractly considered, is not an *entity* or *substantive thing*, possessed of distinct qualities or properties by which it may be distinguished and arranged like the objects† of natural history, but rather a mere mode or condition of the living organism, consisting in a certain change or series of changes in the solids and fluids, the external manifestations of which are the phenomena, whether vital, physical, mechanical or chemical, presented during its continuance, or after the death of the individual subject of it. The difficulty under which the nosologist labours, therefore, may be appreciated by reflecting that the classification of diseases is but a classification of *modes or conditions* of the living system, or more properly, perhaps, the *varying phenomena* connected with those *conditions*.

The methods, also, which have been adopted, or the principles which have formed the grounds of nosological distinctions, have been far *too exclusive*. The etiological method employed by Boerhaave and Hoffman, is certainly not applicable to all diseases, on account of the impossibility of ascertaining and distinguishing, in many cases, the predisposing and exciting *causes*. It is certain that there are some affections brought on by the operation of specific causes, but it is also very certain that there are many identical diseases induced by very different general causes acting upon a system with a certain predisposition which is not understood.

* Rush. Inquiry into the relation of Tastes and Aliments.

† This seems to have been the opinion of the earlier nosologists who adopted it as a maxim, that "Symptomata se habent ad morbum ut folia et fulcra ad Plantam." "Ce qui," says Broussais, "suppose que les maladies tiennent dans la nature le même rang que les végétaux."

The same may be said of symptomatology, which formed the basis of the systems of all the earlier writers, as Sauvages, Sagar, Linneus, Vogel, and Cullen, together with McBride and Selle, for it is evident to any practised physician, that many diseases, distinct in their nature, when seated in the same organ, will exhibit themselves in phenomena so identical as to be confounded together by the most *experienced.* "Thus we have seen softening of the brain mistaken for typhoid fever by the most profound diagnosticians; because in the instance alluded to, the *symptoms* to which the former gave rise so nearly resembled those usually characterizing the latter, especially, we presume, in reference to the brain, as to have led, if not necessarily, at least very easily, into error. Many cases analogous to the above in fact occur, in which we must depend chiefly for our diagnosis not upon what may be called the physiological symptoms, but upon a knowledge of the circumstances under which the disease arose, its commencement, course, invasion, collateral circumstances,* &c." The same objections apply with still greater force to the functional or physiological plan adopted by Dr. John Mason Good.

The *tissual, organic, or topographic system* which originated with Bichat, and has been embraced to a greater or less extent by MM. Broussais,† Prost, Boisseau, Bouillaud, and others, seems to me to be surrounded with still greater difficulties. The localization of all essential diseases, although declared by the latter to be "the most beautiful conquest of modern medicine," yet, founded as it is upon the erroneous notion which refers disease entirely to an altered vital action without regard to the mechanical and chemical actions of the system, must necessarily be defective. If all diseases are local, and merely differ according to their differences of seat, then, unless all diseases are an unit, "we should soon be acquainted with all the different inflammations in the same person, at the same time, and even in the same wound; for instance, in an amputation of a leg, where we cut through skin, cellular membranes, muscles, tendon, periosteum, bone and marrow, the skin should give us the inflammation of its kind, the cellular membrane of its kind, the muscles of theirs, the tendons of theirs, the periosteum, bone, marrow, &c., of theirs; but we find it is the *same inflammation* in them all. It is the adhesion in them all, if the parts are brought together; it is the suppuration, if parts are exposed."‡ Now as the same morbid action may attack different tissues or parts of the body, so it is equally true that different morbid actions may attack the same tissue or part of the system, and although "pathological formations or types are slightly different in different parts of the body, as is the case with animals or plants in different climates or soils, yet the species is invariable and always to be recognized."§

* Amer. Journ. Med. Sci., Feb., 1838, pp. 417, 418.

† It is true that Broussais directed attention to the causes and symptoms in studying the nature of diseases, but he made the suffering organ the basis of that knowledge. Examen, vol. ii. p. 489.

‡ Hunter on the Blood, vol. i. p. 257.

§ Cruveilhier. Amer. Journ. Med. Sci., Oct., 1844, p. 512.

Pathological anatomy, the offspring of Bonetus, Valsalva, and Morgagni, which has been so highly advanced by the labours of Laennec, Hope, Cruveilhier, Carswell, and many others, although offering greater claims upon our attention than any other isolated method for investigating and distinguishing diseases, is still defective.* ***Pathological anatomy is not pathology***, the lesions left ***after death are not disease***, but simply the effect of the morbid action which had been going on in the system during life, and should be considered as nothing more than a kind of special symptomatology. "Physicians open a body and find hypertrophy of the liver or hardness of the spleen, and conclude that the patient died from one or the other of these affections; but they are blind to the fact that hundreds pursue their daily avocations with enlarged livers and hypertrophied spleens, and that women can walk about with ovaria enlarged to the size of a child, till, at last, being found in the dead body, it is presumed that death has ensued in consequence of these enlargements! Shall we never learn from such facts that diseases do not originate from diseased masses and products, but that these same bodies are the effect of disease, and the ***token that it has been present?*** Shall we never learn that the patient died not from these pathological growths, but from the process of disease which called them into existence! and farther, that we are not to direct our attention to the mere residues of disease and the products of death, but rather to the destructive or death process itself?"† But, besides all this, "there are numerous cases arranged into different genera of disease; some of them very important and even rapidly fatal, for example, different forms of fever, certain cases of apoplexy and syncope, tetanus, hydrophobia, &c. &c., which do not necessarily nor uniformly leave behind them, so far as is yet known, any alterations of textures, or other change perceptible to the anatomist, the pathology of which diseases, therefore, although it may derive assistance from, cannot possibly be founded on, the ***knowledge of morbid appearances.***"‡

But a more important and interesting mode of investigating diseases consists in the application of chemistry and the microscope to the study of the state of the fluids and morbid products of the body before and after death. We ***rejoice*** to see the ***humeral pathology revived under such auspices.*** Already have the labours of Magendie, Andral, Dumas, Donné, Prout, Liebig, Raciborski, Muller, and others, thrown important light upon our path, and it is to be hoped that diseases will, ere long, be brought within the range of physical laws, and be treated upon philosophical principles. But even here caution is necessary in the application of these methods, for although it has been most clearly demonstrated that medicines as well as morbid agents operate upon the system through the medium of the blood as well as through the nerves, it would be rashness to look for traces of all diseases in the blood and other fluids. In many, the alterations to be dis-

* We are happy to find our remarks upon this point so happily accordant with those of the reviewer of Schultz's General Pathology in the London and Edinburgh Monthly Journal of Medicine for Aug., 1845. Indeed we might be accused of plagiarism, did we not state that the above remarks are precisely as I find them in my manuscript notes, taken down nearly two years ago.

† Amer. Journ. Med. Sci., Oct., 1845, pp. 473, 474.

‡ Alison's Outlines of Pathology.

covered are either entirely nugatory or accidental complications in the progress of the morbid actions.

The question now comes up, by what method are we to distinguish and classify diseases? Our answer emphatically is,—by a rightful combination and use of all the methods passed in review, so far as they may be applicable to the case before us,—by an investigation of the *causes*, so far as they may be known to us, whether predisposing or exciting,—by a careful observation and comparison of *symptoms*, as they present themselves in connection with the *seats* or *organs* whose functions may be disturbed during the progress of the disease,—by a critical *inspection* of the *lesions* which may be presented after death,—by an examination of the state of the *blood* and *other fluids*,—and lastly, by all those collateral aids which may be afforded by the *history* of the disease and other circumstances already alluded to in a former paper.

With these remarks, we now proceed to take up in order the types into which we have divided diseases, for the purpose of tracing, so far as we may be able, the isopathic connection that may exist among them.

Inflammatory types.—The term inflammation,* besides being objectionable in itself, has been used in a sense so vague and uncertain, that it is difficult, if not impossible to define its meaning. According to the doctrine of the physiological school, which makes inflammation consist in nothing more than an increase in the normal *vital action* of a part under the influence of the morbid cause, the term would embrace the most of the diseases to which the human body is subject, and we are not surprised that Broussais should have contended that pus and tubercle, and the matter of carcinoma, and, in one word, that all degenerescences of structure, were the product of inflammatory action. But even in the more restricted sense of the term, as used by John Hunter, it appears to me that several distinct morbid species have been united together. He evidently regarded simple inflammation as a specific affection, and that adhesion, suppuration, ulceration or gangrene, was nothing more than a mode of termination of the same morbid action.† Now it appears to me that the following should be regarded as axioms in pathology.

1. That unless all morbid actions and processes are general, and of the same nature, and hence, all diseases an unit, every disease must be of a specific character, specific in its incipiency, specific in its progress and specific in its termination.

2. That there are certain changes in the fluids which, from their constancy and uniformity, may be regarded as specific characteristics of the specific morbid condition, and hence, whenever they occur, determine at once the nature of the disease.

3. That a disease which terminates in adhesion or the effusion of coagulable lymph is a specific disease that, left to itself and not modified in its course by remedial agents, could have terminated in no other way; so also a disease ending in suppuration has affixed to it that specific characteristic,

* The term hyperæmia, substituted by M. Andral, we do not consider less objectionable, in a pathological point of view.

† On the blood, vol. i. p. 254.

and its tendency from its incipiency was to that result. The same may be said of any other disease with a specific termination.

I can have no doubt that an open wound may be attended with a kind of suppurative action, or that the mucous membrane of the urethra may ulcerate from the continued irritation of a bougie, or that a part may mortify under the operation of violent causes, as intense cold, &c., and in neither case can these results be regarded as peculiar or specific. But these local effects of local causes cannot be considered as invalidating the truth of the last proposition in its application to constitutional affections in which the termination must be considered as one of the most decisive tests of the true nature of the disease.

Using the term inflammation, therefore, as a specific appellation, we would restrict it entirely to the adhesive form of Mr. Hunter, but adhering to general usage, we will consider under the head of inflammatory types one form of suppurative disease and gangrene or mortification.

Let us now trace out the pathognomonic symptoms of adhesive inflammation. The causes are of a general character, and their mode of operation not well understood. There is fever with a full pulse and a tolerance of blood-letting. The blood exhibits a buffy coat* and an evident increase of fibrin. The termination is by an effusion of coagulable or plastic lymph, and the formation of false membranes or carnification. Of these symptoms there is none more uniform, more constant, nor more important than the *increase* of *fibrin in the blood.* MM. Becquerel and Rodier state that "the proportion of this element is *invariably increased above the normal* standard in all *genuine phlegmasiæ.* This, in short, is the fundamental and essential character of all inflammatory diseases; *without it an inflammation cannot exist.* This increase in the quantity of the fibrin is *invariably found to exist*, whatever may be the composition of the blood in other respects, and the proportion of its other constituents." And to the same end we might cite the experiments of MM. Andral and Gavarret: "Not long since," says Andral,† "Meckel defined inflammation to be congestion with a *tendency to new production.*" The study of the blood shows the justness of this definition. For what else than a new production is this excess of fibrin which suddenly appears in the blood of a person attacked with pneumonia or erysipelas, with an inflammation of the tonsils, of the tongue, of the bronchia, or of the peritoneum? "A new and redundant production of fibrin in the blood is then *the least variable* sign of a certain number of diseases which present further analogies in the nature of the general symptoms accompanying them, and in the uniformity of the treatment which they require." So great is the stress which M. Andral lays upon this "increase in the spontaneously coagulable matter of the blood," that he is led to regard all diseases, however different their seats, as being of the same nature if this characteristic is to be found.‡

Of equal importance is the exudation of the blood plasma in determining the species of inflammation. Dr. Bennett§ "regards the anormal exudation of the liquor sanguinis or blood plasma as the essential phenomenon of

* Mulder supposes that the buffy coat is formed from the albumen of the blood, and consists of the deutoxide and tritoxide of proteine; and from the fact that the albumen is relatively diminished, MM. Becquerel and Rodier have adopted the opinion that the increase of fibrin is brought about by a transformation of the albumen. —Med. Chir. Rev., April, 1845, p. 521, and July, 1845, p. 263.

† Essay on the Blood, p. 60.

‡ Op. cit., p. 68.

§ Med. Chir. Rev., Jan., 1845, p. 93.

inflammation." And the reviewer of Dr. Bennett's work goes on to say that the "exudation of blood-plasma is then the only positive proof we have of inflammation; and the want of a recognition of it as the essential phenomenon has surrounded the description of the disease with vagueness and inconsistencies."

We think we are justifiable, then, in concluding that all diseases possessed of the above characteristics, however different in their seats and some other symptoms, are pathologically the same, and we will now attempt to analyze those types which we suppose to hold to each other this *isopathic connection.*

The prototype of this disease is evidently the essential fever which is commonly known under the name of *inflammatory fever*, and is in all respects the same as the "*imputrid synochus*" of Galen; the "*imputrid continued fever*" of Boerhaave; the "*imputrid continent fever*" of Lomnius; the "*sanguineous continued fever*" of Hoffman; the "*synocha*" of Sauvage, Linnæus, Cullen, &c.; the "*cauma*" of Drs. Young and Good; the "*rheumatic fever*" of Sarcone; the "*argeiotenic fever*" of Pinel, and the "*hæmitis*" of M. Piorry. We will now point out, as briefly as possible, the various types or forms in which this fever may manifest itself.

When it attacks the joints, or seems to be seated in the muscular or fibrous tissue of the system, it has received the name of rheumatic fever or acute rheumatism. This disease has always, we believe, been regarded as one of highly inflammatory character, and agrees in every essential particular with the fever above-mentioned. Andral* found the fibrin of the blood invariably increased in quality, and it is universally admitted to be a disease which now terminates† *in suppuration.* The disease, when confined to the joints, so rarely terminates fatally, that we are not well acquainted with its pathological anatomy, but in those cases where it has ended in death by a translation or metastasis to some vital organ, an exudation of coagulable lymph has always been found.‡

When this disease attacks the heart or its investing membranes, it has received the name of pericarditis, carditis or endocarditis. This extension or metastasis of rheumatism was first pointed out by Dr. Baillie, and many instances of the kind have since been recorded by various authorities. Dr. Odier, of Geneva, in his "Manuel de Médecine Pratique," mentions, among the various symptoms which are apt to supervene on acute rheumatism, an *affection of the heart* that frequently degenerates into a chronic complaint. Dr. Wells has collected several cases of this kind in the 3d vol. of Transactions for the Improvement of Medical and Chirurgical Knowledge, which may be consulted with advantage. Sir David Dundas, in a paper read before the Medico-Chirurgical Society in Nov., 1808, draws the attention of the faculty to the subject. He met with no less than nine cases in the course of thirty-six years. Dr. Marcet met with two cases of rheumatic metastasis from the extremities to the chest. They proved fatal. "My worthy friend, Dr. McArthur," says Dr. James Johnson, "writes to me thus: 'In a few instances I have noticed pain in the intercostal muscles, and palpitations of the heart to an alarming degree in acute rheumatism: but I do not know whether they could properly be called metastasis, because the original inflammation of the joints had not previously receded; they

* Op. cit., p. 74.

† I know that exceptions are given to this rule. I am of opinion, however, that in such cases the disease had lost its original character.

‡ See cases by Dr. Johnson, on Liver; also Med. Chir. Rev., vol. xxxviii. p. 67.

were, however, decidedly rheumatic, and declined 'pari passu,' with the other local symptoms. The disease might be termed extension of the rheumatic action to the heart."*

This intimate connection between acute articular rheumatism and disease of the heart has been also referred to by Hughes,† Bouillaud,‡ Brachet,§ Carswell,‖ Macleod,¶ Todd,** Chomel,†† Latham,‡‡ and many others. Indeed so constant and uniform has been this relation in the practice of M. Bouillaud, that he has written a work with special reference to this law§§ of coincidence, in which he avers that "he has satisfied himself that both these affections (viz., pericarditis and endocarditis), constitute in some measure *natural elements* of the disease, (articular rheumatism,) which, regarded in a juster and more comprehensive point of view, consists of inflammation of the fibro-serous tissues in general." This same view has also been taken by Dr. Macleod. The latter says: "I have no hesitation in expressing my conviction that the pericarditis supervening during rheumatic fever may more correctly be regarded as an extension of the disease than as a true metastasis."

In the same manner rheumatic fever may also show itself upon the peritoneum, giving us a form of peritonitis, or upon the pleura, when we have a form of pleurisy. M. Bouillaud says, "Rheumatism is in fact *nothing else than a pleurisy of the synovial membranes,*" and in his "Treatise on Diseases of the Heart," he says, "rheumatism is, so to speak, nothing else than pericarditis of the joints," by which language he evidently intends to convey the idea that these diseases are *mutually convertible*, and may *replace one another.*

Baglivi,‖‖ it appears, led by the similarity in the appearance of the blood drawn in cases of rheumatism and pleurisy, held that a similar mode of treatment was applicable to both, and of course that they belonged to the same pathological type. "On the ground," says he, "of this analogy¶¶

* The above cases I have taken, in the words of the author, from the work of Dr. James Johnson, "On Derangements of the Liver, Internal Organs, and Nervous System," pp. 139, et seq.

† Med. Chir. Rev., April, 1836, p. 547.

‡ Ibid., July, 1836, pp. 83, 84, 85, 514; April, 1836, p. 357; Jan., 1841, p. 66, 193.

§ Ibid., April, 1838, p. 538. ‖ Ibid., July, 1839, p. 276.

¶ Ibid., April, 1842, p. 409. ** Ibid., Oct., 1843, p. 476.

†† Am. Journ. Med. Sci., Feb., 1837, p. 451.

‡‡ Med. Chir. Rev., July, 1845, p. 173.

§§ Nouvelles Recherches sur le Rheumatisme articulaire aigu en Général et specielement sur la loi de coincidence de la Pericardite et de l'Endocardite avec cette maladie.—Paris, 1836.

‖‖ Med. Chir. Rev., July, 1836, p. 86.

¶¶ To show that this *mode of reasoning* is of ancient date, having been made use of by the sect of empirics, we quote the following from Broussais' Examen des Doctrines Médicales, vol. i. p. 88 and 89.—"Comparer une maladie actuelle avec les maladies déjà vues suffisait donc aux derniers pour tous les cas ordinaires. Mais il en était d'autres où nulle comparaison n'étant possible, c'étaient ceux des maladies nouvelles. Alors on avait recours à *l'analogie*, c'est à dire que l'on jugeait du caractère de la maladie inconnue ou non consignée dans l'histoire par ceux des maladies connues qui paraissaient avoir le plus de rapports avec elle; on appliquait à la nouvelle ce qu'on savait des anciennes qui lui étaient ainsi mentalement substituées; c'est que l'on appellait la *substitution.*

"Ainsi *l'observation* ou *l'autopsie, l'histoire* et la *substitution*, '*transitus ad simile*,' formaient, selon les empiriques, le triple fondement ou le trépied de la médecine," and in their attempts to find out a mode of treatment best adapted to the new or unknown disease, they adopted the following very *simple, concise*, and *prudent mode* of reasoning: "*Puisque cette maladie est semblable à cette autre, elle doit être traité de la même manière.*"

alone we may safely reason from the treatment of the one disease to that which would be proper in the other, so as, in fact, to find that the same remedies are applicable to both." Sir John Floyer would appear to have entertained the same opinion, for he alleges "that *pleurisy is nothing else than a kind of rheumatism.*" The symptoms and anatomical characters of the diseases leave no doubt on our mind of their *perfect identity.*

But this fever may also seat itself upon the parenchymatous structures of the various organs, giving rise to as many distinct diseases according to the nomenclature of nosologists. I can have no doubt that the most common form in which pneumonia presents itself to us is entirely isopathic with the rheumatic or inflammatory fever. The fact has long been known that peripneumony very rarely, if ever, terminates in suppuration. Abscess of the lung is a very rare thing as a sequel of this complaint. Dr. Chambers,* in the *London Medical and Physical Journal* for September, 1827, asserts "that during fifteen years he had been physician to St. George's Hospital, the number of deaths from pulmonary disease had amounted to above six hundred, (600,) and that the bodies of all these persons, with a very few exceptions, had been carefully examined after death, and amongst them, according to the best of his recollection, there had been found only three cases of pure phlegmonous abscess in the lungs." Laennec, it is said,† only met with five or six cases of it, Andral only one. The termination of the disease is always by an effusion of blood-plasma or coagulable lymph, forming what has been called hepatization or carnification of the lung. Reasoning, then, upon the principle of the "*transitus ad simile,*" how can we resist the conclusion of its intimate association with this type or species of disease?

But farther, the reviewer‡ of Dr. Latham's "Lectures connected with clinical medicine, comprising Diseases of the Heart," holds the following language. "While every physician in the present day knows full well that pericarditis and endocarditis *are very common accompaniments* of this disease (rheumatism), not many, probably, are aware that *inflammation of the lungs*, we use this term to comprehend *pneumonia*, *pleuritis*, and *bronchitis*, is also a not unfrequent complication at the same time. Of Dr. Latham's 130 cases of acute rheumatism, the heart was inflamed in 90, or in two-thirds of the whole: while the lungs were inflamed in 24, or 1 in $5\frac{1}{2}$. These 24 cases consisted of 4 of *bronchitis*, 18 of pneumonia, and 2 of pleurisy. Of the four cases of bronchitis the affection was no mere catarrh, but an *inflammation largely* diffused through both lungs, producing deep oppression and dyspnœa. Of the two pleurisies one was single, and the other double. The single pleurisy produced a large effusion into one side. The double pleurisy produced a double hydrothorax. Of the eighteen instances of pneumonia, in nine the disease was of one lung, and in nine it was of both." Now the mode of reasoning by which we would apply the facts to prove the identity of these diseases is simply this. If pericarditis, pneumonia, and pleurisy may exist as a secondary effect or complication of the disease known as acute articular rheumatism, then *acute articular rheumatism* may arise as a complication of these first named affections, or a secondary result. The diseases, then, are *mutually convertible*, and if, although being *mutually convertible*, *acute articular rheumatism* may exist simply without implicating the internal organs, so

* Am. Journ. Med. Sci., Feb., 1828, p. 475.
† Med. Chir. Rev., Jan., 1844, p. 168, and April, 1844, p. 465.
‡ Ibid., July, 1845, p. 172.

also the same disease, originating primarily in the pleura, lungs, or pericardium, may not be complicated with disease of the joints, and still may be the same disease as though it had originated in the joints.

M. Rayer,* in his "*Traités des Maladies des Reins*," describes a rheumatic form of nephritis, and points out very accurately the post-mortem appearances exhibited in the kidney, and M. Chomel,† in his "*Leçons de Clinique Médicale*," has called attention to the rheumatic character of several other visceral affections heretofore included under the sweeping term *inflammation;* but we need not pursue this branch of our subject farther.

I fear I shall excite the smile of my reader when I attempt to trace out this disease upon the *tegumentary tissues* of the body; but I have myself no doubt of the fact that it may manifest itself upon these organs. It may appear upon the cutaneous surface in the form of a scarlatinous or erysipelatous eruption. I do not pretend to say that every form of erysipelas belongs to this type. The phlegmonous I regard as entirely and specifically distinct from the true or inflammatory erysipelas, and I will treat of it under the head of purulent types; but that the latter is identical with the inflammatory or rheumatic fever, is proved by the treatment which is best adapted to its cure, and the state of the blood of those who are attacked by it. In cases of acute febrile erysipelas, M. Andral‡ has determined an *increase of fibrine* equal to that which takes place in the most highly inflammatory diseases, and represented by the numbers 6 and 7 in a thousand parts.

This form of erysipelas may extend to the mucous membranes of the different internal cavities. When it attacks the mouth and fauces it produces that peculiar disease first described by M. Bretonneau,§ of Tours, under the name of *diphtherite*, or angina membranacea. When lower down, involving the larynx and trachea, we have the disease known as croup, the "*cynanche trachealis*" of Cullen, the "*empresma bronchlemmitis*" of Dr. Good. The identity of these two last-mentioned affections has been fully confirmed by several observers. "M. Gendron‖ regards diphtherite and croup as *the same disease*, only occupying different parts. In the one case the cavity of the mouth and fauces is chiefly affected; in the other the larynx and trachea. In both, the character of the inflammation is the same, and there is the same disposition to the *deposit of the false membranes.*" Mr. Ryland¶ says that M. Bretonneau "considers the *ordinary croup of children*, the *cynanche maligna*, and the *plastic angina* or *angina couenneuse* of the French, are all *precisely the same disease*, but producing different effects according to the seat and degree of the morbid action." This same view of these diseases was also taken by Guernsent and Laennec.** Dr. Ruppius, of Freiburg, very justly remarks that "the morbid action or process in this disease (diphtherite), is essentially the same as characterizes the well-known disease of croup or cynanche trachealis. In both the inflammation of the affected mucous tissue has a very marked tendency to cause an exudation of a membraniform lymph on its surface. In the one this phenomenon is usually limited to the trachea and lower part of the

* Med. Chir. Rev., Jan., 1842, pp. 58, 59.

† Amer. Journ. of Med. Sci., Feb., 1837, p. 451.

‡ Pathological Hematology, p. 72.

§ See a notice of Mr. Ryland's "Treatise on the Diseases and Injuries of the Larynx," in Amer. Journ. of Med. Sci., Feb., 1838, p. 443.

‖ Med. Chir. Rev., vol. xxiii. p. 538. ¶ Ibid. Jan., 1838, pp. 52, 53.

** Ibid., Jan., 1838, p. 53.

larynx; while in the other it is observed chiefly on the velum palati, the tonsils and back part of the fauces."—*Med. Chir. Rev.*, from the *Zeitschrift fur die Gesam. Med.*, vol. xxxiv. p. 595. Dr. Stokes* holds the following language upon this subject:—"This diphtheritis is a most formidable disease. It is analogous, in many of its most prominent features, to that affection which the old medical writers called cynanche maligna; at all events it resembles it in this, that in both there is the formation of a dense albuminous pellicle, and I think that as far as it goes, we may call it a species of croup in the cavity of the mouth and pharynx." Diphtherite sometimes attacks the external surface when it is known as *cutaneous diphtherite.* "This curious affection, noticed by Bretonneau, has been especially described by Trousseau. It consists of a pseudo-membranous inflammation of the skin prevailing during the epidemics of pseudo-membranous angina, affecting any part which becomes denuded of the cuticle as by blisters, excoriation, friction, &c "†

We pass on to notice one more affection which we suppose to be connected with this species. I allude to the diarrhœa tubularis of Dr. Good. This disease was first arranged in a nosological classification by Good, who says in regard to it that "it appears to depend on a peculiar irritability of the mucous membranes of the large intestines, which in consequence secrete an effusion of coagulating fibrin, fibrin mixed with albumen instead of secreting mucus. It has a *striking resemblance* to the fibrous exudation thrown forth from the trachea in croup, but is usually discharged in longer, firmer, and more compact tubes."—*Study of Med.*, vol. i. p. 252. Blumenbach has shown that a like effusion of fibrin sometimes takes place into the uterus through the excitement of an aphrodisiac passion alone, without copulation or impregnation, and "Morgagni has given examples of so perfect a formation of the same membrane by the irritation that takes place in painful menstruation, as to render it difficult to be distinguished from that belonging to an ovum." I remember to have attended a lady once who, after suffering violently from strangury, passed a membraniform substance from the urethra which was represented to me as being of a tubular character.

Having now passed through some of the modifications of our first species of inflammation, we propose to consider under the same general head two affections which, although regarded universally as *mere terminations* of inflammation, are, in our opinion, distinct species of disease. We allude to suppuration and gangrene or mortification. We will take up the last mentioned, first in order.

We can readily believe that gangrene or mortification may be a termination of any violent acute disease, under peculiar circumstances, and, of

* I am aware that diphtheritic angina has sometimes been found to be symptomatic of scarlatina, and hence, according to our mode of reasoning, we might conclude that these two diseases are isopathic with one another, and with the species we are now considering. How far this may be true, I will not take upon me to say, but I have been tempted to believe that the scarlatina of children was the erysipelas of the adult, and properly belonged to this species. The fact that in children there must be a great disposition to an increase of fibrin for the purposes of growth, renders probable a greater tendency to a morbid alteration in this process, and hence, their greater liability to the disease, but the apparent contagious nature of scarlatina renders the connection doubtful.

† It must be admitted, however, that in relation to the last-mentioned diseases there is so much confusion and difficulty, as is the case indeed with all diseases of the tegumentary tissues, that the determination of the precise relation which they hold to one another, must be a matter of more or less doubt.

course, in all such instances, it cannot be regarded as a specific feature, although, like the putrescent state of the blood, on which it no doubt depends, it must always be regarded as a fearful complication. But there certainly is a kind of gangrene which must be considered *primary* and specific, and so far as we can discover, not the result of inflammation, or, at least, of that species which we have above described.

Most authors in treating of this disease, seem to consider it, for the most part, as a local affection, or, if they refer it to a general state of the system, they seem not to connect that condition with the local disease, except in a very general or indirect manner. Even in cases of spontaneous gangrene, various causes have been assigned for its origin which are entirely of a local and mechanical character. Ossification of arteries or their obliteration by coagula of fibrin, ossification of the valves of the heart, a disturbance of the nervous influence, &c. &c., have been said to give rise to it. Bating those cases, however, where the local affection has been induced by the application of such local causes as would tend, at once, to produce the immediate death of the part, as heat, cold, &c., there is good reason for believing that the disease is dependent upon a morbid, constitutional process, which may be considered to be a putrescent fever, or a putrefactive fermentation of the fluids, whose tendency is to bring about the death of those parts where the force of the disease may spend itself.

I am happy to find this opinion supported by an authority so high as that of Mr. Travers. He says, "gangrenous inflammation is, therefore, to be regarded as essentially of constitutional origin in *all circumstances:* Its local termination is the same disorganization as follows from the work of destroying agents: in this extreme result only, do the inflammation of gangrene and the state of gangrene touch and analogize. When we speak of an inflammation passing into gangrene, we convey that the system is the medium through which such a change is effected, and that, thereby, the whole character of the action is changed." Again, "gangrenous inflammation is often secondary to intense cutaneous and cellular inflammation, and so common is this association, that the terms 'gangrenous erysipelas' and 'carbuncular abscess' are in practical use to denote these combinations, and the distinction of gangrenous from adhesive and suppurative inflammation. It is an acute inflammation *directly* disorganizing, because the resisting power of the parts affected by it is inadequate to sustain the circulation. . . . . That it is a substantive mode of inflammation, is shown by its occasionally idiopathic existence, as well as its distinctly marked primary characters; by its supervention in decayed or diseased habits on very slight forms of injury; and, especially, by its tendency to spread along the neighbouring parts, from the extremities to the centre;" and again, "gangrenous inflammation may be primary, that is, no other mode of inflammation going before it. The circulation of the part and neighbourhood becomes stagnant, and the vessels, both arteries and veins, are choked with broken and semi-solid coagula. Is it due to the vehement intensity of the local inflammation and consequent exhaustion of the nervous life of the part, or to a *constitutional condition* which renders the solid and fluid elements incapable of entertaining the functions of the part, on which depend its temperature and principle of resistance to external agents, in other words, its life? In all cases, not produced by external injury, and in *many that are so produced, I believe, the latter is the true explanation.**

* See a review of Travers and Bennett on Inflammation. Med. Chir. Rev., Jan., 1845, pp. 106 and 107.

The explanation which is given by Liebig of the action of putrid poisons upon the body, seems to me to apply here with remarkable force. In all such cases a morbid agent is introduced into the system, which, by *its presence*, excites an action allied to the *fermentative*, by which certain parts of the blood are transformed into new products. If the poison or exciting body meet in the blood, a principle from which, in its action upon the first, it may be renewed, the disease is contagious. If this principle do not exist, then the poison itself is lost in the transformations which ensue, and, of course, the disease is not contagious.* The small-pox and the measles may serve as examples of the first, while the common gangrene or sphacelus is an example of the second class of cases. This same view seems to be adopted also by M. Dumas† in his *Lectures on Organic Chemistry.*

That substances may act in this way upon the body is fully shown by the examples given to us of the poisonous properties of sausages in a state of putrefaction, when introduced into the stomach. Liebig, op. cit., p. 388, tells us that in such cases "all the substances in the body capable of putrefaction are gradually decomposed during the course of the disease, and after death nothing remains except fat, tendons, bones, and a few other substances which are incapable of putrefying in the conditions afforded by the body." This "*gangrenous infection*," as it has been called by Rokitanski, is beautifully illustrated in a case related by Dr. Budd, in his treatise "*On Diseases of the Liver.*" We take pleasure in transcribing the following comments of the author. "In this case," says he, "the existence of gangrene both in the liver and in the lung, was clearly shown by the defined line surrounding the gangrenous portions. The source of the mischief here, was, no doubt, the gangrene of the toes produced by cold. The man was in the prime of life, of spare habit, muscular, florid, and in good health at the time of the frost bite. The case shows us what a serious thing a small patch of gangrene in any part of the body may become. The dissemination of the gangrenous masses, the existence of a number of them isolated and at a distance from one another, proves that the septic agency *was conveyed by the blood.* The noxious matter thus disseminated destroyed the vitality of the tissues on which it acted most strongly. The chemical theory of these septic changes is now well known. All parts in which they are taking place have a tendency to affect other parts brought into contact with them with the same mode of transformation. The case just related, and it is by no means a solitary one, offers one of the most interesting illustrations of this theory in the whole range of pathology."

The reason why an action of this kind is not always general may be explained in the words of Liebig. Op. cit., p. 404. "The action as well as the generation of the matter of contagion is according to this view a chemical process participated in by all substances in the living body, and by all the constituents of those organs in which the vital principle does not overcome the chemical action. The contagion (or putrid poison) accordingly either *spreads itself over every part* of the body, or is confined particularly to certain organs, or only *a few* of them, according to the feebleness or intensity of *their resistance.*"

The rule which has been laid down by some surgeons in regard to the exact time when amputation should be performed in cases of mortification of a limb, proves that at times it is a constitutional affection and does not

* Vide Chemistry in its Application to Agriculture and Physiology, by Justus Liebig.

† Med. Chir. Rev., July, 1842, p. 163.

stop by the removal of the offending member. The rule to which I refer is that the operation should never be performed "before the mortification has stopped and a line of separation appears between the dead and living parts," a rule which should never be violated except when the mortification is *clearly local.*

But I presume that it will hardly be denied that mortification is very often a constitutional disorder, and it is not very important to our present purpose whether the mode of explanation which we have given of the manner in which the morbid cause operates be received or not, but surely it is reasonable to suppose that in all cases in which the blood seems to play so important a part in the disease, some morbid transformation of the kind to which we have above alluded should take place. For my own part, I am inclined to apply this explanation of the morbid process to most of the diseases that we will allude to in the remaining part of our paper.

The first disease which we shall notice as belonging to this type or species is the *gangrena senilis*, or dry gangrene of Pott. In this affection the gangrene or mortification appears to come on with no previous symptom of inflammation, and is for the most part confined to the lower extremities. It was at one time attributed to the eating of ergot or spurred rye (secale cornutum), but probably without sufficient reason.* Mr. Pott says of it that "it is very unlike to the mortification from inflammation, to that from external cold, from ligature and bandage, or to that which proceeds from any known and visible cause. It frequently happens to persons advanced in life, but it is by no means peculiar to old age."

Of a nature identical with this type is the disease commonly known to surgeons as "*hospital gangrene.*" Delpech defined it as "a peculiar disorganization of the soft parts so that they disappear without leaving any trace of their primitive tissue, and become a putrid homogeneous gluten." M. Vidal accepts the definition, but not without criticising it. "This definition," says he, "which has not only all the defects of surgical definitions, but also those which characterize the style of the author, may serve, however, to give an idea of the singular disease of which we are treating."† The disease is so well known that it is unnecessary to enter upon its description, which can be found in almost any surgical work, and is lucidly given by Hennen in his "*Principles of Military Surgery.*" It seems to be peculiar to hospitals, where it is aided in its progress by "*an impure and unventilated atmosphere.*" Dr. Good‡ supposes that it may be propagated by contagion. M. Devergie§ is of opinion that the cause of the disease in the St. Louis Hospital, in Paris, is its exposure to "the unhealthy *emanations* from *Montfaucon*, (where there is a large *abattoir* or slaughtering-house, and where there is often collected an immense accumulation of most offensive animal refuse,) *as the patients in those wards which were on the other side of the building seemed to be quite exempt from it.*"

The next form of disease which we must associate with this type or species is *pulmonary gangrene* or *gangrene of the lungs.* This disease we believe, was first distinctly described by Laennec, who says of it,‖ "It can *hardly be regarded as one of the terminations of inflammation* of that viscus, and still less can it be regarded as a consequence of the *intensity*

* Practice of Medicine, by M. Hall, p. 112. I cannot but believe, however, upon the authority of authors, that a similar, if not identical, disease is produced by the action of ergot.

† Med. Chir. Rev., July, 1842, p. 175. ‡ Study of Med., vol. iii p. 494.

§ Med. Chir. Rev., vol. xxxviii. p. 140. ‖ Diseases of Chest, p. 64.

of *the inflammation.* In truth, in such cases the inflammatory character is very little conspicuous either in the symptoms or in the morbid condition of the injured organ. I would, therefore, say that this disease *is allied to those affections which are essentially or idiopathically gangrenous*, such, for instance, as the *different varieties of anthrax*, and that the inflammation existing around the gangrened part is rather *the effect than the cause of the mortification.*" M. Guislain* has adopted in part this opinion of Laennec. "M. Chomel has described a gangrenous condition of the lung which he has found occasionally in the bodies of those who have died from the effects of exposure to the effluvia from cesspools and sewers."

M. Boudet's† observations upon this disease have led him to the following conclusions, first, that "gangrene of the lungs appears to be more frequent in childhood than at any other period of life. Secondly, it is *essentially* of the *same nature as those other forms of gangrene* that are *developed spontaneously or under the influence* of *putrescent fever.* Thirdly, in the child, gangrene, when it affects the lung, is *rarely limited to this organ;* usually *several other parts of the body* are *similarly affected at the same time.* Fourthly, (7) local causes, such as inflammation, the existence of tubercles, &c., do not seem to *have any direct influence on the production of pulmonary gangrene.*"

This species of disease may show itself in a milder form, as an erysipelas upon the skin. This was observed by Dr. Riberi,‡ of Turin, "who, in describing a hospital gangrene in the hospital of San Giovanni in that city, during the years 1817–1820, tells us that it often alternated from a sphacelating to an erysipelatous inflammation, the latter appearing as the former began to cease on the return of a cooler or drier air, or where both coexisted, the slighter or erysipelatous affection being limited to the more robust patients, or those who were fortunate enough to lie in the best ventilated parts of the sick wards."

Another affection which we regard as identical in character is the gangrene of the mouth of children, usually occurring about the period of dentition, and heretofore described under the names of gangrenous *stomatitis* or *gangrænopsis, cancrum oris, sloughing phagædena* of the mouth, *gangræna oris, cancer aquaticus* or *water canker*, &c. "This disease§ commences with a purple spongy appearance of the gum, either of the upper or lower jaw; to this state speedily follows ulceration, which eats deeper and deeper until the alveolar processes are quite exposed. The ulcerated surface is much disposed to bleed, so that its character is often with difficulty ascertained. In severe cases the ulceration rapidly pased into a state of gangrene and sloughing, and these morbid changes extend from the gums to the lips and inside the cheeks. The diseased surface becomes quite black, the teeth drop out, the jaw-bone becomes carious and even the *tongue may become partially destroyed.* In some cases the disease commences in the lips or cheek, and extends thence to the gums. The accompanying constitutional symptoms are usually an irritative feverishness and a greater or less degree of diarrhœa, which quickly reduces the young patient's strength and carries him off." This gangrene may attack any of the tissues of the economy. It is said‖ to be most common in the mouth, the pharynx, the lungs,

* Med. Chir. Rev., Oct., 1836, p. 509.
† Am. Journ. Med. Sciences, No. 16. N. S. p. 485.
‡ Good, op. cit., vol. iii. p. 493.
§ Med. Chir. Rev., Oct., 1837, p. 527.
‖ Vide Review Bouchut, Rilliet and Barthez, On Diseases of Children, Med. Chir. Rev., July, 1845, p. 102.

and the skin, but wherever it occurs it must be looked upon as the *same disease.*

As belonging to this type, we would enumerate the various cases of *softening* or *ramollissement* of the tissues. "Drs. Klaatsch and Hesse have attempted (and I think rightly) to prove that the gangrene affecting the gums and soft parts surrounding the mouths of children is to be attributed to a decomposition of these textures *similar* to *that which occurs* in *softening* of the *stomach, uterus, and other organs* independent of and altogether unconnected with true gangrene."* I can see no reason except in the colour of the parts, why this softening should not be regarded as true gangrene. It is evidently a partial or total decomposition of the tissues affected, similar in every other respect to that which occurs in gangrene. There is, also, a form of true gangrene of the external surface, which, from the pale appearance of the skin and other parts involved, has been denominated "*white gangrene.*" A case of this kind has been narrated by Dupuytren† in the *Revue Médicale*, and occurred at the Hotel Dieu, in Paris. Mr. Mayo says in regard to the disease, "white gangrene is an affection of the skin in which, without any assignable cause or preliminary symptoms, patches of skin of the area of one, two or three square inches suddenly die. It occurs sometimes on the breast. In the Museum of King's College there is a model of white gangrene in which the disease attacked the arm; several patches of cutaneous gangrene successively formed; the sphacelated parts were *white from the commencement* of the process to their separation, when healing and healthy granulating sores were left."‡ An interesting case of this kind occurred in St. George's hospital in September, 1830, and is detailed in the *Med. Chir. Rev.*, April, 1836, p. 341.

Dr. Abercrombie has related a very interesting case of what he calls "*black ramollissement* of *the liver*," which his reviewer says "is unquestionably not the *result* of *any inflammatory action;* it is more *allied to gangrene.*" And a case of white softening of the brain has lately been reported by Dr. Todd§ in the *Medico-Chir. Transactions*, "in which its *analogy* to senile gangrene *is very distinctly shown.*"‖ How far the author may be correct in attributing the disease to an arrested flow of blood through the right carotid in consequence of a dissecting aneurism of the aorta, I will leave others to judge.

Gastromalacia, or *ramollissement of the stomach*, is another form of softening which we consider as belonging to this species. "There are various degrees of this morbid process. In the first the mucous membrane is found to break or tear across whenever we attempt to raise it with the fingers or forceps. In the second the softening is so much greater, that by merely scraping it lightly with the edge of the scalpel, it is converted into a soft, opaque, creamy-looking pulp; and in the third extreme degree it is

* Am. Journ. Med. Sci., No. xli. p. 205.
† Am. Journ. Med. Sci., May, 1835, p. 228.
‡ Rev. of Mayo's "Outlines of Human Pathology."
§ Ranking's Abstract, vol. i. p. 204.
‖ This disease is considered, by Rostan and others, as a peculiar change *not of an inflammatory character.* Dr. Abercrombie supposes that it may be sometimes the result of inflammation, and at other times consist in a change *resembling mortification* in *the other tissues*, and arising from disease of the arteries. *A similar view is taken by Dr. Carswell.* Vide M. Hall's "Practice of Medicine," p. 421, and Examen des Doctrines Med., vol. iv. p. 654, et seq. Ollivier mentions gangrenous eschars as being common in ramollissement of the spinal marrow.—Ibid., vol. iv. p. 748.

so loose and soft that a stream of water is sufficient to detach it from its subjacent connections. In this last stage portions of the mucous membranes are found on dissection partially or entirely destroyed, and the submucous cellular tissue is laid bare in irregular or round patches of different sizes."*

Various causes have been assigned for this degenerescence. Dr. Carswell says, "that it depends on the chemical action of the gastric juice." This seems to have been the opinion of John Hunter, who published a paper in the "*Philosophical Transactions*," on the "digestion of the stomach after death." Dr. J. Gardiner believed it to be owing to the action of "the fluids contained in the stomach and intestines," but that it took place also "in consequence of a *peculiar disease* of the canal whereby portions of it are rendered more easily soluble by the action of its contents." A different view has been taken of it by some of the best German and French anatomists. Cruveilhier and Louis regard it as being "a *peculiar diseased alteration* of the *affected tissue*," and the *Med. Chir. Rev.* has the following passage:—"That this morbid process takes place without preceding inflammation is admitted by all the best writers, but whether it is always the effect of the solvent power of the intestinal juices, or occasionally the result of an idiopathic and vital process is not definitely settled. Andral leans to the *latter opinion*, and thus confirms the views of Cruveilhier and Guernsent, and of the German anatomists." What else can be this *peculiar diseased action* but a progressive transformation of the tissues, effected by the putrefactive fermentation?†

The last disease which we will mention in this connection is the anthrax or carbuncle. This is senile gangrene in another form, and the only difference consists in the circumstances in which the patient is placed and his previous state of health. The chief feature of this painful affection is the gangrenous state of the subjacent cellular tissue. The malignant pustule is evidently the same thing, and is brought on by the introduction into the system of animal matter in a state of transformation or putrefactive fermentation. Hence, slaughter-men, tanners, fell-mongers, tallow-melters, &c., are peculiarly liable to the disease.

With regard to the nature and cause of malignant pustule, M. Bourgeois‡ remarks:—"The disease is essentially of a gangrenous and septic character, and is the result of direct absorption of an animal poison into the system. This poison seems to be generated in the bodies of most of our domestic animals, at least in those which are herbivorous, as in the sheep, ox, horse and ass; and is capable of being transmitted by direct contact to mankind." He thinks, also, that the poison may be conveyed from the sick animal to man by insects, and that the hair or wool of an animal who has had the disease, will retain the poisonous matter for a great length of time, notwithstanding they had been washed. He says he saw a man

* Med. Chir. Rev., July, 1837, p. 216.

† We deem it unnecessary to investigate in detail the various groups of symptoms which may arise from this morbid process according to the organs affected, and the functions disturbed in its course, as these may readily suggest themselves to the mind of the reader. Softening of the brain may show itself in symptoms truly typhoidal, and be considered typhus, or it may put on another form and become an *apoplexy*; of the spine, as tetanus or some form of paralysis; of the stomach, as an irritative fever, or gastritis, and dysentery, &c.

‡ Med. Chir. Rev., Oct., 1843, p. 485. See also an interesting paper on the subject by Dr. Pennock, Amer. Journ. Med. Sci., for Nov., 1836, in which, he says, this disease bears "*a striking analogy to dry mortification.*"

"who seemed to have caught the disease by *handling the horse hair taken out of an old sofa.*"

We come now to the subject of suppuration, and, in deference to common usage, we will consider under the head of inflammatory types, one species of disease attended with this result. We will confine ourselves here, however, to a mere notice of this diseased type, reserving, for our succeeding division, some remarks upon the general subject. We wish it, however, to be understood, that the explanation which we may give of the mode of formation of pus and the process of suppuration, is entirely applicable to the present case.

The type of this disease is phlegmonous inflammation or common phlegmon. This inflammation is, for the most part, confined to the cellular tissue, and has been, heretofore, regarded as the type of all inflammatory diseases, but if our postulate be granted, that the formation of pus is a specific termination of a disease whose tendency from the beginning was to such a result, it surely cannot belong to either of the species above described. Andral,* I am aware, controverts what he has called the dogma of Tommassini, "that a disease commenced with one diathesis cannot change it during its course," and attempts to show "that inflammation, the essence of which is to make the blood more consistent by increasing its fibrin, may bring about, remotely, the liquefaction of the blood by the destruction of its fibrin," and its conversion into pus.

This view of morbid transformations is unsupported by any analogy in the transformations effected in different substances out of the body. Diastase in contact with starch or dextrin produces an action which transforms them into sugar and nothing else. The action of synaptase upon amygdalin results in the production of peculiar products which are invariable. Yeast converts sugar into alcohol and carbonic acid, and is limited to this result. Why then should we believe that a morbid agent in its action upon the blood first transforms proteine into an excess of fibrin and then the fibrin into pus globules?

The pathognomonic symptoms of this disease are a fever of an inflammatory character, if any; an increase of fibrin in the blood, but moderate; the exudation of blood plasma by which a sac is formed, and the pus is confined. The pus laudable, with no disposition to cause ulcerations, or infect by contagion, and when discharged, the abscess readily incarns.

The disease, I believe, to be of a constitutional character, and to depend on, or, at least, to be intimately connected with, a transformation of the fibrinous parts of the blood into pus. This is certainly an elementary feature. If this be admitted, it seems to follow, as a matter of course, that in whatever part of the body it may seat itself, it should be regarded as essentially the same disease. In what can an abscess, with the above characters, of the liver, for example, differ from an abscess of the brain or lungs? To show, however, the great disposition of systematic authors to multiply, unnecessarily, species of disease, we need only refer to Dr. Good, who has made of suppurative tumours no less than three genera, and sixteen distinct species; besides the cases where suppuration takes place as a supposed result of that inflammatory action, distinguished by the term *empresma.*

It is needless to enumerate the different seats and forms of phlegmon. The above characters will sufficiently distinguish it wherever located. Suffice it to say, that it must never be confounded with the gangrenous species of disease, to which it makes a near approach in the *furuncle* or

* Op. cit., p. 90.

phyma, nor with those suppurative diseases induced by a specific contagion, such as the *bubo*, nor with those extensive depositions of purulent matter which seem to be connected with a scrofulous condition of the system, and form the most of the species under the genus *apostema* of Dr. Good, of which we will treat in our next general division.

Purulent types.—The nature of pus and its mode of formation are questions which have not yet been satisfactorily determined. The difficulties in regard to its true characters may probably arise, in a good degree, from the fact that the term has been applied to morbid products which are essentially different, at least, in a pathological point of view. There can be no doubt that there are many diseases specifically distinct which result in this formation, and that this fluid has, under such circumstances, a very different effect upon the system when introduced, or in any other way applied to it. Who can believe that the bland, inodorous, innocuous fluid flowing from a healthy granulating surface or collected in a simple phlegmon, is not specifically different from the corroding matter of a syphilitic chancre, or the contagious matter of a variolous pustule! and yet they are all considered as *pus*, and may have the same external appearance, and possibly, the same chemical reactions. The diseases which produce them, however, are evidently distinct, and the morbid action of the fluid effused is also very different.

From these facts it follows, then, that pus must differ in its chemical and physical *properties*, and consequently *may* differ also in its chemical and physical *constitution*. We know that two bodies or substances may have the same physical properties and a different chemical composition, or the same chemical composition and different physical properties, or, in other words, they may be *isomorphic* and not *isomeric*, or *isomeric* and not *isomorphic*. The only evidence we can have of the perfect identity of any two substances is, that they are both *isomeric* and *isomorphic*. Simply *isomorphic* or *isomeric* products of two diseases cannot, therefore, establish their identity, but if those diseases should result in products which are both isomorphic and isomeric, they must be considered as *isopathic*, no matter how they may differ in their seats and symptoms. The identity, therefore, or dissimilarity of diseases may be determined by determining the physical and chemical nature of the morbid products. This is to be achieved by chemistry and the microscope, but we are sorry to say that as yet, we have not advanced far enough in this study to accomplish this end with perfect success.

It was the opinion of Boerhaave, Platner,* and most of the older writers, that pus consisted in "a dissolution of the blood-vessels, nerves, muscles, and other solids, in the fluids of the parts in which inflammatory tumours occur." This opinion, however, we believe is upheld by no well-informed physician of the present day. M. Gendrin† supposes that the "globules of pus are those of the blood deprived of their colouring matter and somewhat enlarged and deformed." Dr. Hake‡ seems also to believe, that in certain cases, pus may be nothing more than "a degradation of the blood globule." Dr. Hodgkin, Mr. Liston,§ MM. Magendie,‖ and Andral¶ think, on the contrary, that the globules of pus and of blood are totally dissimilar. Andral says, "I cannot admit, as has been maintained by some, that the

* Bell on Ulcers, p. 55.
† Hall's Practice of Medicine, p. 110.
‡ Med. Chir. Rev., Oct., 1839, p. 353.
§ Hall, op. cit., p. 110.
‖ Leçons sur le Sang.
¶ Op. cit., p. 83.

globules of pus are a transformation of those of the blood. Nor is the pus formed at the expense of the serum, the albumen of which is found unchanged, the pus being merely suspended in, without being, in the least, confused with it. May not, then, the pus globules be nothing more than a modification of *fibrin*, which instead of reaching the net-work form has remained in the serum, in that state of granular corpuscles whose origin and nature I have already pointed out?" Mr. Carpenter* supposes that pus is produced by a transformation of the "*exudation corpuscles*," which are found in the fibrin after being effused and exposed to the contact of the air.

From experiments performed by Mr. Addison† on pus, he has been led to believe in the identity of pus-cells with the white corpuscles of the blood. By the action of liquor potassæ the pus-cells were ruptured and transformed into a substance having all the appearance of "*fibrous tissue or of mucus.*" By the action of dilute acetic acid upon this fibrous coagulum of pus the pus was changed into "*an opaque, white, friable substance resembling tubercle.*" These experiments are interesting, and prove the intimate relation "between the plastic element of the blood and the elements of pus and tubercle, but we do not see that they add much to our knowledge of the exact nature of that relation, since we have no reason to think that the process of transformation by the agency of liquor potassæ and acetic acid is identical with that which takes place in the living body, but only bears a certain degree of *analogy* to it."

The advocates of the various theories which have been advanced in regard to the *mode of formation of pus* may be arranged as follows:—Those who suppose it formed from the fluids *after extravasation into the inflamed parts;* those who suppose it formed in the *capillary vessels*, and by the *action of those vessels;* and lastly, those who suppose it *formed* DIRECTLY IN THE BLOOD.

The experiments of Sir John Pringle and Mr. Gaber led to the belief that pus was formed, in the language of Benjamin Bell,‡ who adopts the opinion, by "a change produced by a certain degree of fermentation upon the *serous parts* of the blood after its *secretion into the cavities of ulcers and abscesses.*" This opinion has been very generally entertained, and although differently expressed, has recently been advanced by Travers and Bennett§ in their respective works on inflammation. Mr. Travers says, "pus I believe to obtain its characters of consistency, opacity, and colour, *after exudation*, and to consist of the superfluous or waste lymph which has *been separated*, during the adhesive stage, from the mass of the blood held in solution by serum, being thus a chemical modification of the constituents of the liquor sanguinis; in short, the latter fluid deprived of its original characters and property of spontaneous coagulation. Pus particles resemble those of lymph seen in the vessels under inflammation, except that they appear broken down and partly dissolved in their texture, instead of compact, and of less regular figure; and if, when suspended in a drop of fluid, compared with the elastic blood corpuscles, to which they bear no analogy whatever, utterly inert and devitalized. We never see pus in the blood-

* Principles of Human Physiology, p. 456.

† British and Foreign Med. Rev., for July, 1845, pp. 122, 123.

‡ Treatise on the Theory and Management of Ulcers, p. 55. By "serous parts of the blood," is here meant serum with more or less coagulable lymph or "liquor sanguinis."

§ Review of Travers and Bennett, in Med. Chir. Rev., vol. xlvi. p. 102.

vessels but in fatal phlebitis, and if introduced into the circulation by injection, it is destructive to life." In relation to this theory, I would merely observe, here, that I believe there is a form of pus or purulent matter which may be produced in this way, as, for instance, in an open, healthy granulating wound; but that the blood-vessels never contain pus except "*in fatal phlebitis*," we hope to show, hereafter, is contrary to the observations of many high authorities.

The next opinion, alluded to above, is that which refers all suppuration to a secretory action of the vessels of the parts inflamed. This opinion was first advanced by Dr. Simpson, of St. Andrews, in the year 1722. De Haen announced a similar opinion in the year 1756, from having observed an expectoration of pus in persons affected with phthisis "in whom after death, no marks of ulceration could be perceived, not even the place in which the pus had been formed." This view was adopted by Hewson, Plenciz, Schroeder, Home, Cruikshank, Morgan, and John Hunter. There is, however, a wide difference in the idea attached to this secretory process by these different writers. While Simpson and De Haen, as I imagine, suppose the vessels to separate or secrete a matter already formed in the blood, Hewson, Hunter, and others, have assumed for the vessels themselves, a *new power*, by which they convert the coagulable lymph into the matter of pus. De Haen, in the language of Carswell, "was led to believe that pus, in the cases above alluded to, was immediately secreted from the blood, and adds, that although the blood appears to be a homogeneous fluid, yet it is manifest, that there is something in it, when collected, which is of a tenacious consistence, of a whitish or yellowish colour, and which might *be called the matter of pus.*" Hunter,* on the contrary, maintained that this process was effected by the *powers of the arteries alone.* "Pus," says he, "is not to be found in the blood similar to that which was produced in the first stage, but is formed from some change, decomposition, or separation of the blood, which it undergoes in *its passage out of the vessels*, and for effecting which the *vessels of the parts have been formed*, which produces a subsiding of the inflammation from which it took its disposition; hence, it must appear that the formation of pus consists of something more than a *straining of juices from the blood.*"

This doctrine as maintained by Mr. Hunter, has been, for the most part, embraced by all the *vitalists* of the past and present day. Reasoning, however, *à priori*, it is difficult to conceive how the simple mechanical action of dilatation and contraction, which is all that can be allowed to belong to *the vessels alone*, can effect an alteration in the fluids except in the separation of principles *already existing in them*, and again in his view of this action there is no analogy in the secretory or excretory acts of the economy as now understood. All the secretions† and excretions are now known to be principles already existing or produced from transformations effected in the mass of the blood,‡ and eliminated by means of the glandular

* On the Blood, p. 138, vol. ii. † Carpenter, op. cit. pp. 508, 509.

‡ Liebig supposes that the organized tissues are subject to transformations, and he seems to believe that "the animal secretions must of necessity contain the products of the metamorphosis of these tissues."—(*Animal Chemistry*, p. 126.) It is time, I think, that this Pythagorean dogma was abandoned. There is no good reason for believing that there ever is any change or metamorphosis of the elementary parts of the animal tissues after organization. After the complete growth of the body is effected the fibrin of the blood is of no use in the organism except to repair solutions of continuity or be converted into the secretions. Metamorphosis, therefore, must be confined to the fluids or substances deposited in the tissues.

apparatus, so that in truth the word secretion now possesses its original meaning of *separation* and not *creation*. If, then, we consider the inflamed part as acting the part of a gland, it only separates particles already *transformed* or *in the act* of *passing into pus*.*

But farther, the fact of extensive purulent deposits taking place in the body without any previous symptoms of inflammation, as in cases of chronic or cold abscesses and metastatic or secondary abscess, offers a great drawback to the entire correctness of this theory. Mr. Hunter was aware of the difficulty, but got over it by declaring that the matter effused in such cases was not true pus. Others, however, have contended that there was, even here, a previous inflammation. This is the opinion of Morgagni, Boyer, Rose, Lawrence, Cruveilhier and Mr. Travers. While Chaussier, Marjolin, Ribes, Velpeau, and others are found arrayed upon the negative side of the question.† Mr. Travers‡ says, "the suppuration in diffused cellular inflammation, in cold abscesses after typhus and other cases of constitutional exhaustion, as especially erysipelas and animal poisons, are the cases which appear to authorize the belief that pus may be formed independently of adhesive inflammation. But it is my belief that in these cases the effused fibrin dies before its organization is accomplished, as granulations perish in certain ulcers. . . . . It is, therefore, no pathological exception, unless, indeed, an exception establishing the rule, since the same order of actions is preserved, but the constructive are cut short or overpowered by the destructive from the diseased state of the blood and the general habit. . . . . The phenomenon of late years brought under the notice of pathologists of what are called *secondary deposits*, and of which I have seen many examples, require only to be referred to here. So far as the question whether inflammation be indispensable to the production of pus bears upon such cases, I consider *them to form no exception* to the *universality of this law*." It is with diffidence that I dissent from the statement of an authority so high, but from my own observations and the statements of others, I can have no doubt that in many of these cases there is not the least trace of what is commonly understood as inflammation, to be observed either before or after death.

But a still greater difficulty presented to the advocates of this exclusive theory, is, that since the blood in diseases has come to be more carefully studied, it is found in many instances vitiated by pus. De Haen long ago admitted that "*pus might be found* in the *blood* in *certain circumstances*," and the fact is now established beyond contradiction. Mr. Gulliver§ and others have detected it in many cases of disease. This condition of the blood is now commonly known as "*purulent infection*," or "*purulent diathesis*," and M. Piorry has applied to it the appellation of "*pyohemic*," or "*entorrhée pyohemique*." This difficulty has been met, however, by supposing that in all such cases there either existed an inflammation of a vein from which the pus was effused or the existence of purulent depôts from

* Mr. Earle has recently controverted this doctrine of Mr. Hunter in regard to the formation of pus, and seems to think that it is not a secretion as he understands the term, but a mere mechanical separation of some component part of the blood, most probably the red globules deprived of their colouring matter. The manner in which they are converted into pus, however, does not appear. (Vide an interesting paper by Martin Paine, on the Theory of Inflammation, Am. Journal, May, 1838, p. 69.)

† Vide a paper by Dr. Nasse, of Bonn, "On Secondary Abscesses," Med. Chir. Rev., April, 1836, p. 531.

‡ On Inflammation.—Med. Chir. Rev., Jan., 1845, p. 103.

§ Am. Journ. Med. Sci, Feb., 1840, p. 441.

which it was absorbed after it had been formed. In the case of "*secondary abscesses*," MM. Blandin, Dance, Arnott, Cruveilhier, and many others adopt the former view, Marechal, Legallois, and Rochoux the latter. To the first mode of explanation it may be replied, that in many cases of the kind no phlebitis can be detected. M. Velpeau* says, "For my part I feel convinced that inflammation of the vein does not constantly exist, but that the affection (metastatic abscesses) may be produced either as a consequence of phlebitis or of simple absorption. . . . . How often have I found large collections of pus in the viscera without being able to detect the *slightest trace of inflammation in* any *part of the venous system?* Upon this point *I am positive*, having *determined* it *so frequently* by the *most careful examination.*" He gives it as his opinion that in these cases the "pus may be introduced into the torrent of the circulation either by the lymphatics, the veins which open on the wound, or by imbibition." But to this opinion is opposed the fact, universally admitted by all microscopists, that the pus globules are from two to four times the size of the blood globules, so that the introduction of the former into the blood *in this way* is rendered *a physical impossibility.* Andral† having, by his observations, arrived at the conclusion that "the presence of pus globules in the circulating fluid is a fact that can in no wise be contested," says that in some cases "there was nowhere the least trace of phlebitis," and in regard to absorption, "it is not easy to understand how such large globules as those of pus can penetrate in mass by a sort of endosmosis through the coats of the vessels; at the most they could traverse them only in fragments, and, as it were, in ruins." And to the same effect Magendie,‡—"Le volume des globules du pus étant constaté par tous les micrographes, nous avons le droit de douter, jusqu'a preuve contraire, de la resorption de la matière purulente au moyen des capillaires veineux, resorption qui ne nous semble pas admissible a cause des conditions physiques dans lesquelles se trouvent les tubes d'une côté, et de l'autre les molécules qui doivent les parcourir." But to render the evidence still more convincing, a case has been reported by M. Duplay§ which occurred at the hospital de la Pitié, under the care of Professor Rostan, of a female in whom the blood appeared to have undergone a complete purulent decomposition, and upon dissection no trace of "*phlebitis, metritis, or purulent cavity in any part*" could be detected.

These and such like facts have led some pathologists to adopt, with such modifications as are consistent with the present state of science, the old humeral notion that purulent matter is formed in the blood and is secreted either in its complete or *nascent state* into abscesses, wounds and ulcers. This, as we have seen, was the opinion of De Haen. Mr. Carswell,‖ although he defends the doctrine of Hunter to a certain extent, yet distinctly says, "there is, however, another mode, which to a greater or less extent, is, perhaps, always in operation at the same time with the former, but which under certain circumstances is effected alone. I allude to the formation of pus in the blood under circumstances in which the influence of the capillary system, as exercising a function of secretion, can have no part. . . . . From all these facts it must be evident that the capillaries

* Am. Journ. Med. Sci., N. S. Oct., 1841, p. 481.
† Op. cit., p. 83. ‡ Op. cit, p. 324.
§ Am. Journ. Med. Sci., May, 1835, p. 181.
‖ "Illustrations of the Elementary Forms of Disease,"—from Med. Chir. Rev., vol. xxviii. p. 28.

can have no share in the purulent transformation of the blood in the examples we have brought forward of this change, and therefore it follows that the formation of pus cannot be restricted to a morbid process induced in the vessels by inflammation and the subsequent separation of this fluid from the blood."

M. Tessier, however, seems to have taken the lead in endeavouring to establish the doctrine of an idiopathic contamination of the blood by pus by means of a peculiar "purulent diathesis," by which there is produced in the system "a tendency to the formation of purulent matter." This view of the subject was expressed in a memoir which was read before the Academy of Medicine. M. Blandin having been appointed to report upon it, "his report was unfavourable to the views of the writer." M. Blandin "professing his decided belief in the other view of the question, that which was proposed by John Hunter, and has been adopted by Dance, Velpeau, Cruveilhier, and many other well-known authorities." An epistolary correspondence* afterwards took place between them on a case which occurred at the Hôtel Dieu, under the care of Blandin, in which M. Tessier combats the doctrine that the pus is introduced into the blood from an inflamed vein, and boldly advances the opinion that "phlebitis, the alteration of the blood by the pus, and the formation of metastatic abscesses are consequences of a peculiar disposition or diathesis of the affected patients, pre-existent to those alterations, and which, once developed, becomes the cause of the purulent secretion of the vessels, viscera, and cellular tissue, and is outwardly manifested by certain peculiar characteristic symptoms." "The mechanical physician," says he, "has taught that the introduction of purulent matter into the circulation is the cause of those changes in the blood, which usually take place in cases of the purulent diathesis. On the contrary, I have shown that these changes represent the phases of the purulent transformation of the vital fluid under the influence of the fatal diathesis." M. Andral appears to me to lean to the same opinion. In the fourth volume of his *Clinique Médicale* he holds the following language: "Peut-etre l'époque n'est elle pas éloignée où l'on reviendra à cette idée de De Haen, qui admettait que dans certaines circonstances le pus peut se former de toutes pièces dans le sang comme on voit *se former l'urée dans l'état physiologique.*"

Raciborski† has recently advanced the same opinion, and has undertaken to explain the production of the pus upon the principles which have been furnished by the admirable researches of M. Liebig. After alluding to the action of yeast upon sugar, he says, "may not something akin to this take place when a portion of purulent matter in a state of decomposition is brought into mere contact with the blood? and may not the entire mass of the circulating fluids in this manner undergo a certain change as we daily see take place in the fermentation of large quantities of vegetable juices when the minutest quantity of leaven is added to them?"

"It has usually been too much the case with pathologists to ascribe the alterations, which are met with in the veins of those who have died from suppurating wounds, to an inflammation of the parietes of those vessels. But I am persuaded that, in very many cases of this sort, the pus that is found in the interior of the affected veins, is no more the direct consequence or result of a phlebitis, than is the deep red colour of their lining membrane, so frequently seen in fatal cases of typhus fever."

* See a Review of this controversy in Med. Chir. Rev., vol. xlii. p. 223, et seq.
† Am. Journ. Med. Sci., N. S., Jan., 1844, p. 215.

"In support of this opinion, I might allude to the accidents which are apt to follow dissection wounds. In these cases, all the phenomena, from the earliest local symptoms observed during life, to the most serious anatomical lesions discoverable after death, might seem to justify the appellation of phlebitis—which has been usually applied to this state; and yet, what is more manifest than that there is a primary alteration of the blood under the influence of a fluid in a state of decomposition?"

This, or some similar mode of accounting for the formation of pus, appears to me to comport most closely with the facts which have been observed in regard to this process, and it is the one, upon the whole, which we are most inclined to adopt. But whether it arise from a *fermentation or zymotic action* produced by the introduction of a putrid poison into the system, or from *mal-assimilation on the part of the nutritive apparatus*, we still regard it as highly probable, if not absolutely certain, that the formation of pus is, in most cases, a *constitutional disorder;* that *a disturbance* of the blood *is a primary phenomenon*, and the local *symptoms of inflammation*, such as the dolor, color, rubor and tumor, *are entirely secondary.*

In the diseases which we are about to consider, under this head, we regard a purulent diathesis, or tendency to the production of pus, as an essential feature, and we believe that this alteration begins in the blood. Pus globules, may not, in all cases, be detected in this fluid while in the torrent of the circulation, and yet they may exist there in a *nascent** state, and may be supposed to assume their proper form either in passing out of the vessels or after they have been actually extravasated. This disposition characterizes, however, several other diseases, one of which, the common phlegmon, we have already noticed, and others shall be treated of under the head of *exanthematous types.* We propose, in this place, to speak of two forms of disease, which, although allied in several particulars, we must regard as distinct species.

The pathognomonic symptoms of our first species are, fever of an adynamic or typhoidal character, the existence of purulent matter or the *materies puris* in the blood, deposition of pus in various parts of the body, disease, for the most part acute, and disposed, under favourable circumstances, to spread by contagion.

The following affections we would refer to this species, and we will now attempt to point out their isopathic connection.

This essential fever, to which we would apply the term "pyogenic," of Voillemier, sometimes manifests itself in that form of disease known as *phlebitis.* This disease was first described by Mr. John Hunter many years ago, but very little attention seems to have been paid to it until of late, when, as we have seen, it was appealed to by the pathological anatomists, as a mode of explaining the purulent infection of the blood, and those metastatic or secondary abscesses which take place in various parts of the system after amputations or other surgical operations. We need not enter into a description† of the disease further than to say, that one of its most

* Our idea can be very well illustrated by having recourse, for one moment, to the doctrine of cell-formation. Supposing that the globules of pus or pus cells are derived from the elements of the blood, they may exist in the circulation as cytoblasts or cell-germs, or even in the form of alternate granules, and be formed after exudation.

† For an excellent description of this disease, I would refer to a paper on the subject by Professor Chapman, of Philadelphia, in the number for July, 1843, of the Amer. Journ. Med Sciences, p. 13.

important features consists in the disposition to the formation of pus. It is said to occur either from injuries done to the veins, or spontaneously. Dr. Chapman says, "it very rarely happens that it originates spontaneously." It most commonly proceeds from some injury done to the vein. It sometimes, however, originates from the most trifling exciting cause. "The slightest incision or puncture or *even a scratch will lead to the most disastrous results of this nature from the cleanest instruments.*" This proves conclusively that there must exist, in such cases, a constitutional predisposition produced by some cause of which we are ignorant. That predisposition, I must believe, consists in the "*purulent diathesis*" of M. Tessier.

The almost constant association of this disease with *secondary abscess*, is a clear demonstration of *their perfect identity*,—and we proceed to give the observations of different writers upon this point. This coincidence is, indeed, so common that it has induced some pathologists to attribute the secondary abscesses, in all cases, to the previous existence of phlebitis. This, as we have seen, was the opinion of such men as Blandin, Dance, Arnott and Cruveilhier. So convinced is M. Blandin* of this necessary connection, that in those cases in which the phlebitis cannot be detected in the soft parts, he directs to the examination of the "*veins of the osseous texture*," under the impression that the disease may have its origin there. Dr. Nasse,† of Bonn, says, the results of very numerous dissections have satisfied him "that *phlebitis* in some part of the body, and most generally in the immediate vicinity of the original disease, is, in the majority of cases, an accompaniment of secondary abscesses. Often, when this morbid appearance has not been discovered, he is of opinion that it might have been so "*had the blood-vessels of the bones been minutely examined.*"‡ Mr. Douglas§ says, "in every case of secondary abscess above detailed, which I dissected since I met with the inflamed vena portæ, I have been able to trace inflammation of the minute veins of the part," and the following seem to be the facts established by his observations, first, that "phlebitis is the invariable cause of the secondary abscesses," and secondly, "that those secondary abscesses are themselves the result of a secondary phlebitis, the inflammation being seated in the venous radicles." We need not, however, insist further on this point. The frequent association of the two conditions is acknowledged by all who have paid attention to the subject. We conclude, therefore, our remarks upon it, by the following extract from the *Med. Chir. Review* for April, 1833, p. 404, a *work to which we feel ourselves very greatly indebted.* "With reference to the co-existence of phlebitis and the purulent deposits, it seems to us that we may venture on the following conclusions. First. that the symptoms of phlebitis and the purulent deposits are *very similar, if not identical in kind.* Secondly, that in a considerable number of cases, phlebitis and the purulent deposits are found by examination after death, to co-exist. Thirdly, that in many cases, a careful inspection can detect no traces of phlebitis, while the purulent deposits are present. Fourthly, that in many cases, phlebitis exists

* Med. Chir Rev, April. 1838. p. 548 † Ibid., April, 1836. p. 538.

‡ This preconceived notion of the necessary existence of a certain phenomenon as a cause of another, is a great bar to correct observations upon any subject. Men who look *for a thing*, will be almost sure to find it, and it may not be considered uncharitable to suppose that the advocates of phlebitis, as a cause of secondary abscesses would be satisfied with the *least appearance of inflammation*, and could they but find in a vein a *red spot* no larger than that produced by a *flea-bite*, it would be called *phlebitis.*

§ Ibid., July, 1836, p. 268, et seq.

without the purulent deposits." We believe that this is sufficient evidence of the mutual convertibility of these two affections, and, of course, of their *isopathic connection.*

The next form in which this "pyogenic fever," or "suppurative," as it has been called, may manifest itself, is *erysipelas.* By erysipelas here, we of course mean an entirely distinct disease from that already spoken of under the head of "*inflammatory types*," although we believe that these forms may show themselves, in some cases, so nearly isotypic as to be with difficulty distinguished. It may be superficial or deep-seated—cases of which are noticed by Dr. Corbin* in a paper published in the "*Journal Complementaire*," or it may be external or internal. Dr. Warren, in his excellent work on tumours, pp. 255, 356, after giving an account of an operation after which the patient died unexpectedly, attributes the result to erysipelas, which was prevailing in the hospital at the time, and goes on to say "no cause we are acquainted with can so well explain this sudden and unexpected termination. Nor is such an occurrence new to me. I have seen numbers of patients perish in a few days after operations, at the time that erysipelas prevailed in the hospital, without the *slightest external erythema.* In such instances, I have been in the habit of stating that these patients died of erysipelas as truly as if they had been covered with an erythematous eruption. This disease is *constitutional.* It may affect the skin, and it generally does so. It may *affect the internal organs without affecting the skin,* and, in such instances, is most dangerous."

If the disease be slight there may be no evidence of the purulent infection; the erythema will be superficial, and the disease soon pass off. If, however, it prove more violent, it soon shows itself as *a purulent disease,* having all the characters belonging to phlebitis. Extensive suppurations take place in the subcutaneous cellular tissue or in some deep-seated organ. In the first case it is known as "*phlegmonous erysipelas*," "*diffuse phlegmon*," "*diffuse inflammation of the cellular texture*," &c. We believe that it will not be doubted that this latter disease is truly a form of erysipelas; the existence of these various forms in the same hospital, at the same time, during the prevalence of the erysipelas, proves their isopathic connection,† and it appears to me that whoever will attend to the history, progress, and termination of phlegmonous erysipelas and phlebitis, cannot fail to perceive that they are identical in their nature. The description so graphically given by Dr. Chapman, of phlebitis, corresponds precisely with that of those cases of diffuse cellular inflammation which I have have myself observed.

When this disease attacks the internal organs it may assume the form of Arachnitis. The sudden metastasis, which occurs of traumatic erysipelas to the head, proves that the brain may become the seat of the affection. Dr. Chrestien‡ of Montpelier, mentions "a case of erysipelas of the leg disappearing and followed by delirium, which was subdued by calling the eruption to its primitive seat by a blister. A similar case is recorded by M. Blandin." Mr. Nunneley§ has also described a form of Arachnitis which, he thinks, belongs to this type.

* Amer. Journ. Med. Sci. for Nov. 1831., p. 205.

† Med. Chir. Rev., vol. xxvi. p. 162, vol. xxvii. p. 316.

‡ Ibid., vol. xl. p. 158

§ A Treatise on the Nature, Causes and Treatment of Erysipelas. Am. ed., p. 10. This, like every other essential fever, may affect the peritoneal or mucous coat of the bowels, giving us enteritis or dysentery.

But I pass on to a more interesting form of disease, which I have long believed to belong to this species, I allude to "*puerperal fever.*" This disease has received the various appellations of "metritis," "puerperal peritonitis," "metro-peritonitis," "uterine phlebitis," &c. That it is the same disease as those we have alluded to above, appears to me to be susceptible of the clearest proof. In the first place, it is like them a disease whose anatomical character "*consists in the existence of purulent matter in some part or other of the body.*" So constant is this character, that it is to this disease that Voillemier has applied the term "pyogenic fever," par excellence. Dr. Nonat* has found the pus, in these cases, in various parts of the system. In some, it was deposited in the substance of the uterus. In others, it was found in the veins and lymphatics; again, in the cavity of the peritoneum, and even in the tendinous sheaths of the forearm, in the lungs and mediastinum. M. Tonnellé supposed that this disease was "connected with the circulation of pus in the veins." Dr. Fergusont generalizes this proposition, and supposes that it "originates in a vitiation of the fluids." In an epidemic of puerperal fever which appeared in the Parisian hospitals‡ in 1843, the post-mortem examinations uniformly revealed the existence of pus in some part. The lymphatics of the uterus or its appendages were, in some, filled with pus. Sometimes the ovaries or Graafian vesicles, or peritoneal cavity, or cellular tissue of the pelvis, were the seat of purulent matter.

But in the second place, they *co-exist at the same time, and under the same circumstances.* Dr. Gordon§ in his *Treatise on Puerperal Fever*, p. 48, says, "that the puerperal fever is of the nature of erysipelas, was supposed by Peautau forty years ago, and has been the opinion of Drs. Young and Home of Edinburgh, since that time. I will not venture positively to assert that the puerperal fever and erysipelas are precisely of the same specific nature, but that they are connected, that there is an analogy between them, and that they are concomitant epidemics, I have unquestionable proofs. For these two epidemics began in Aberdeen at the same time, and afterwards kept pace together; they both arrived at their *acme* together, and they both ceased at the same time." This is the testimony of Hey‖ and Ferguson,¶ and many others, and it is unnecessary to dwell upon the point.

But in the third place, a stronger proof of their identity is found *in the fact of their mutual convertibility.* It would require more space than we can at present devote to it to mention the numerous facts which support this proposition. A very few must suffice. "The same connection," says Dr. Gordon, op. cit., p. 49, "is evident from this circumstance, that a very frequent crisis of the disease is by an external erysipelas, which is a proof that there is a metastasis of the inflammation from the internal to the external parts," and again, "this critical erysipelas is most commonly fixed on the extremities, but in a few instances on the external surface of the abdomen, which happened in a case of puerperal fever which I attended in 1788." The following facts are narrated by Dr. Lee,** (who, by the way, is no believer in their identity,) which, says he, "may seem to prove that there is

* Med. Chir. Rev., April, 1838, p. 545.

† Ibid., April, 1839, pp 462, 467

‡ Am. Journ. Med. Sci., Oct., 1845, p. 509. See also a paper by Voillemier, in same Journal, Jan., 1841, p. 213.

§ Treatises on Puerperal Fever, edited by Meigs.

‖ Op. cit., p. 82. ¶ Med. Chir. Rev., April, 1839, p. 465.

** Op. cit., p. 281.

some connection between erysipelas and puerperal fever. In the autumn of 1829, a short time before the epidemic broke out in the British Lying-in Hospital, which led to its being closed for several months, two children died of erysipelas. Another fatal case occurred in the course of the epidemic, and on examining the abdomen I found the peritoneum extensively inflamed, with a copious effusion of sero-purulent fluid. Another infant was attacked with gangrenous erysipelas of the right forefinger, whose mother had died of uterine phlebitis. Mr. Blagden related a similar case to me. A midwife of the hospital had a severe attack of erysipelas of the face a few days after attending in labour a fatal case of inflammation of the absorbents and uterine appendages. During the prevalence of inflammation of the uterus among the patients of the same hospital in the winter of 1831 and 1832, two children died from inflammation and suppuration of the umbilical vein, and in both there were patches of erysipelatous inflammation on different parts of the body." Mr. Storrs,* of Doncaster, relates the following among many other interesting facts. "On Feb. 18th," says he, "I attended in labour a Mrs. Barret, of Cleaveland street, a neighbour of Mrs. Pearson, who did well, but her child was seized with erysipelas of the abdomen, from the navel to the genitals, of a gangrenous character, and died on Feb. 4th. Mrs. Pearson laid out this child, and was confined herself on Feb. 19th, attended by Mr. Loxley; she was seized with fever (puerperal) on the 21st, and died on the 24th. Her infant was sent out to a nurse at a neighbouring village, and was seized with erysipelas when a fortnight old, which also assumed a gangrenous character, and the infant died on 27th March. Another of the cases of puerperal fever was also incidentally connected with erysipelas, viz., Mrs. Briggs (case 8th). She was delivered, and continued on the same bed in which her husband had lain who had only just recovered from a severe attack of erysipelas and typhoid fever." But we have not space for any further extracts. Many more facts of the same import might be adduced. We would refer for further information on this point to a paper by Dr. Elkington, of Birmingham, published in the *Provincial Med. Journal*,† for Jan., 1844, also one by Dr. O. W. Holmes, in the *New England Quarterly Journal of Med. and Surgery*‡ for April, 1843, and to the account by Hall and Dexter of the erysipelatous fever of Vermont and New Hampshire, in the January number of the *Am. Journ. Med. Sciences*§ for 1844.

We conclude what we have to say on the subject of puerperal fever with the following extracts. "The *Provincial Journal* contains several papers in which puerperal fever is carefully reviewed by Dr. Blackmore, who subscribes to the opinion now very general, that it has in its more fatal form at least, the closest analogy to typhoid erysipelas. The same view is likewise taken by Mr. Symonds, to whom we are indebted for an excellent paper upon the subject, and by M. Storrs. Mr. Symonds, however, in acknowledging the erysipelatous nature of the epidemic fever agrees with the general experience of the profession, that there is a form of the disease *which is purely inflammatory*, and which, according to him,

* Am. Journ. Med. Sci. for Jan., 1843, p. 224.

† Am. Journ. Med. Sci., April, 1844.

‡ Ibid., July, 1843.

§ See also papers by Mr. Storrs, in Am. Journ. for Jan., 1846, p. 245; by Dr. Peebles, ibid., p. 23; by Dr. Meeker, ibid., for July, 1844, p. 273; by Dr. Sutton, ibid., for Jan., 1844, p. 247; by Osiander, ibid., for Aug., 1839, p. 447; by Rognetta, ibid., for Jan., 1845; by Kneeland, ibid., for Jan. and April, 1846; Peddie and Ried in ibid., April, 1846.

may attack all the tissues. The same writer speaks also of a third form, which he calls *remittent puerperal fever.* Mr. Storrs lays down the following propositions in relation to puerperal fever, that it is capable of imparting to any person not in the puerperal state by actual contact or close approximation, any of the following diseases, 1. *Inflammation of the peritoneum or other serous membranes, accompanied by a low type of fever.* 2. *Erysipelas, either local, such as arises from dissection wounds, or general, as on the face or person.* 3. *Typhus fever, with various accompaniments and in a variety of forms.*"* And to sum up in relation to all the foregoing diseases, Mr. Nunneley says,† "if it can be shown that the causes which produce them are the same, that by one form of affection another may be induced; that two or more forms of the complaint exist together, not only as epidemics but at the same time, or in some instances, interchangeably in the same individual, that some of them run so much one into another, that those who are most anxious to separate them are unable to do so; that the constitutional symptoms are for the most part the same; that, allowing for the variety in the organization and functions of the different textures, the local changes are the same; and that one plan of treatment is adopted for all: it may, I think, be fairly assumed as proved, that the affections *are identical in their nature,* at least according to all the rules of philosophy, *which forbid us to admit separations and distinctions* where *phenomena are the same.*"‡

This disease also presents itself at times under the form of typhus fever. That typhus or typhoid is a form of purulent disease, is shown from the fact that it frequently terminates in critical abscesses in different parts of the body,§ and that it is connected with erysipelas is shown by its being attended at times with an erythematic eruption. Bouillaud says this eruption may be either "*papular, exanthematic,* or *pustular.*" It is known that M. Bretonneau has given the name of dothinenterite to the affection known as typhoid fever on account of the *furuncular or pustular character* of the inflammation of the small intestines, and particularly of the glands of Peyer and Brunner. M. Bouillaud‖ considers this inflammation as *erysipelatous.* We have already alluded to the fact that Hildebrand regarded typhus as a specific exanthem, and that Dr. Roupell had adopted the same opinion.¶ Among the serious complications of this fever, he mentions "*erysipelas, and suppuration, and gangrene,*" and he goes on to say, "during the prevalence of the epidemic in various years idiopathic erysipelas has been a very common and a very serious addition to other complaints in persons exposed, from their situation in hospitals and elsewhere, to the vicinity

* Am. Journ. Med. Sci., Jan., 1846. p. 245.

† A Treatise on the Nature, Causes and Treatment of Erysipelas.

‡ Of the same nature apparently is the disease commonly known as Phlegmasia alba dolens, and by some pathologists it has been ranked with this species under the name of crural phlebitis, but there is such an intimate connection between this disease and the state of the mammary secretion, as has been stated by M. Gerardin, that I am inclined to view it as a kind of milk fever by translation connected possibly with a morbid transformation of caseine, but I am not satisfied about its pathology.

§ Mr. Gulliver has detected pus in the blood of patients affected with low typhoid fever.—(Am. Journ. Med. Sci., Feb., 1840, p. 443.)

‖ Am. Journ. Med. Sci., Aug., 1834, pp. 465 and 567.

¶ Ibid., April, 1839, pp. 97 and 110. We were at one time inclined to the opinion of the specific nature of typhus, and we will speak of the disease again under the head of exanthematous typhus, but we believe most cases may be referred to this species, and hence it properly comes under this division of our subject.

and infection of typhus, and so common was it in the progress of the fever during the present year, as well as during that of 1831, that no doubt could be entertained *that it was essentially connected with and incident to this disorder.* Dr. Bateman noticed it in the house of recovery, and considers it an accessory disease. M. Louis observes that *shivering* rarely took place in the course of the disease except to usher in some new calamity, such as erysipelas. It prevails at the *same time with typhus, is preceded by the same symptoms,* and *arises amongst nurses or those in attendance upon the patients ill with the fever.*" Mr. Storrs, in the paper already referred to, establishes his proposition that *typhus fever, erysipelas,* and *puerperal fever are* the *same disease,* by narrating several cases in which these diseases showed themselves to be mutually convertible. In the practice of M. Louis* six cases occurred in which erysipelas appeared in the course of the typhoid affection and in four of them extended to the subcutaneous cellular tissue, and it is a remarkable fact that in those cases there was but slight and partial alterations in the mucous membrane of the small or large intestines, proving that there was here a metastasis of the disease.

The last form of disease which we will mention as belonging to this species is pneumonia typhoides. This disease in the United States has been known under various names, as "*malignant pleurisy,*" "*petechial or spotted fever,*" "*bilious epidemic fever,*" "*bilious pneumonia,*" &c., and I have no doubt that at least two distinct diseases have been comprehended under them. One is the true pneumonia, with typhus or pneumonia typhoides, which prevailed at Long Island in the winter of 1749, and was described by Dr. Bard in the first volume of the *Am. Med. and Philos. Register,* and again appeared at Medfield, in Massachusetts, in the year 1806, after which "it continued to show itself for several years in different parts of New England, and extended itself into some parts of New York, Pennsylvania, and Canada." The other I suspect to be a form of "marsh fever." In this form it has been known as "*cold plague,*" and has for the most part shown itself "among labourers employed on canals and similar works in miasmatic districts of the United States."† This latter species we suppose to be the same fever as that of Rome and Modena, already alluded to in our former paper, and the "*congestive fever*" of the West."

The former or true typhoid pneumonia we believe to belong to our present species. The accounts which I have seen of the morbid anatomy of this affection do not enable me to speak with confidence upon this point. Dr. Hosack‡ speaks of "the overloaded state of the vessels of the lungs, the large effusion of serum and sometimes *purulent matter.*" Dr. Dickson§ mentions hepatization of the lungs and "effusions of serum, of coagulable lymph and even of *purulent looking fluid*" into the ventricles of the *brain* and "within the cerebral substance."

Dr. Stokes‖ has described this disease as being frequent in Dublin, and he "classes under *the same head* the varieties of acute pneumonia which occur during the *course of typhus and typhoid fever,* as well as in *phlebitis, erysipelas, or diffused cellular inflammation.*" Such is also the

* Vide his Recherches sur la Fièvre typhoide, tome deuxième, p. 120.

† Practice of Med., by M. Hall, p. 281.

‡ Essays on Various Subjects of Medical Science, vol. ii. p. 894.

§ Essays on Pathology and Therapeutics, vol. i. p. 441.

‖ Treatise on Diagnosis and Treatment of Disease of Chest, as quoted by Am. Journ. Med. Sci. for Feb., 1838, p. 431.

view taken of this disease by Dr. George Sutton, of Aurora, Ia., who ranks it with the erysipelatous fever which has so extensively prevailed in the United States within a few years past under the common name of "*black tongue.*" For my own part I feel at present convinced that this last-mentioned affection, so far as I can form an opinion from the statements of others concerning a disease which I have never seen, is nothing more nor less than typhoid pneumonia in another form, and I am happy to give in corroboration of this opinion, the following extract from Dr. Sutton's* paper published in the "*Western Lancet.*" "This disease (epidemic erysipelas) has either assumed several characters or we have had several epidemics traversing the country together. One was an erysipelas connected with cynanche tonsillaris or swelling of some of the lymphatic glands. Another was what we considered a *typhoid pneumonia*, sometimes connected with swelling of the axillary glands. These two diseases have been so *intimately connected* in my practice, and wherever I can hear of the epidemic prevailing, that it has been a question with me whether *the last* was not a *pulmonic erysipelas.*† *The premonitory symptoms in each disease were alike;* the *character of the fever* in *each was the same;* it *was often the case that one form of the disease changed into that of the other;* and *we frequently had in different members of the same family, the two forms of the disease at the same time.*" It appears to me that we can want no better proof of the isopathic connection of these affections.

Having now passed over some of the most important diseases belonging to this type or species, we will take up the consideration of those which come under our second species of this division, and, on account of the space we have already occupied, we can do little else than enumerate the types or forms under which the species may manifest itself. The pathognomonic characters are as follows: fever, a hectic, constitutional disturbance, at first slight, or even imperceptible; purulent infection of the blood, terminating in immense collections of pus in some part of the body; pus, innocuous and often laudable, disease chronic, abscesses not disposed to heal readily after the matter is evacuated. Like the former species, one of the chief characteristics of this is the purulent infection of the system, or the disposition to the formation of pus. It differs, however, in its origin and progress, as well as in the fact that it seems not to have a tendency to spread by contagion.

Among the forms which we would enumerate, are those immense apostemes which are found, at times, in different parts of the body; such, for instance, as the *lumbar abscess, abscess of the liver, empyema or lodgment of matter in the chest*, and the disease called *vomica*, by Dr. Good, which, by the way, is nothing more than a symptom of the bursting of some internal aposteme. Of the same nature with the above, we are inclined to believe, are the scrofulous diseases of the *hip-joint*, known as "*hip-disease,*" or "*morbus coxarius,*" and of the knee-joint commonly called "*white swelling,*" which we cannot make room to describe.

The last form under this species which we will notice, is the apostematous consumption, or "phthisis apostematosa" of Dr. Good. We will speak more particularly of phthisis under the head of "tubercular or stru-

* Am. Journ. Med. Sci. for Jan., 1844, p. 248.

† Sarcone, Ludwig, and Planchon also regarded this disease as a pulmonic erysipelas, and Dr. Good thought them probably right in their conjecture.—Study of Med., vol. ii. p. 439.

mous types." All that we can say here is that we have no doubt that under the name of phthisis have been comprehended at least three distinct species of disease,—one of which belongs to our present species, and is, in all respects, a purulent and not a tubercular affection. The secretion of tubercle and the secretion of pus are separate acts of the system, each of which must exist separately. Tubercular consumption may terminate without the formation of pus, as I think I once witnessed, and apostematous consumption is not necessarily connected with the previous existence, although I will admit that it may come on after the deposition of tubercles in the lungs. De Haen, as we have before seen, was unable to discover in persons who died of purulent consumption any "*mark of ulceration, or even the spot in which the pus had been formed*,—and in cases of the kind, so completely was the blood transformed into pus, that Dr. Hake observes, that "in the last stages of phthisis, the blood was found by Dr. Carswell and myself, to contain *no other globules than those of pus*." I cannot help, believing, however, that all these diseases are internally connected with a strumous or tuberculous disposition in the system, and they lead very naturally to the next general division of our subject.

Liberty County, Ga., *March* 31*st*, 1846.

Art. VIII.—*Some Statistics of Small-pox and Vaccination.* By J. F. W. Lane, M. D., Boston.

Within a comparatively recent period the importance of vaccination has been so carelessly and heedlessly discussed by medical men, that even the public are beginning to call in question its efficacy, and to demand at the hands of its practitioners a fair and candid statement of its actual value. It is urged that the cases of small-pox, after vaccination, have increased in frequency. If this be so, why is it? Has the vaccine virus been modified by its frequent transmission through the human system? Is its protective power of limited duration? What degree of blame, if any, can be attached to the careless application of matter by those unacquainted with the true character of the vesicle? These, and a host of other questions arise, for which answers must be sought by patient industry and searching investigation. Theory, mere speculative theory must be rejected from our examination; and data, statistical tables alone, be taken for the foundation of the superstructure,—a humble tombstone in memory of Jenner! Perhaps some law may be dimly discerned, but to discover the *laws of vaccination* were too much to expect as yet, for not half a century has elapsed since the practice was introduced to public notice by the celebrated inquiry of Jenner, (about the last of June, 1798,) and the question of revaccination is still in bitter contest, a question which time and epidemics can alone correctly answer.

These and other similar causes, not less than the degree of respect due to the memory of Jenner, imperatively call for a thorough and candid examination of the subject. Data must be collected from whatever source they can be gathered, and carefully arranged so that some general principles may be deduced therefrom. In the course of the following investigation great impediment has been experienced from the want of such statistical tables in this country as can be relied upon. The imperfections of the bills of mortality throughout the entire country are such as to throw doubts upon any deductions in regard to a particular point drawn from them only. Those of Boston, New York, Philadelphia, and Baltimore for a considerable series of years have been looked over, but little use has been made of them on this account.

It were foreign to our purpose to examine very minutely into the history of the various epidemics of variola since the flood, or, with some writers, to attempt to establish that the subject treated of is mentioned in the Old Testament. Thus Willan, upon the authority of Philo, finds the description by Moses of the plague of boils and blains perfectly adapted to the small-pox, some fifteen hundred years before the Christian era. So, also, the Chinese, claiming upon the score of antiquity every modern invention, must be allowed to have had, by their own testimony, the small-pox for at least 3000 years. We shall simply consider its fatality under known circumstances and in particular places.

Upon the authority of Dr. Baron, according to the researches of Black, Lüssmileh and Frank, eight or nine per cent. of the human race were carried off by small-pox. Duvillard estimates that only four out of the hundred reach the age of thirty without having it; that one in seven or eight of those attacked dies, and of those attacked in infancy only two-thirds escape. Dr. Cross, in his work upon the variolous epidemic of Norwich, 1819, furnishes the following table of the ages of 530 persons who were cut off by the disease of that year:

Under 2 years of age - - - -	260
Aged from 2 to 4 years, - - - -	132
" 4 " 6 " - - - -	85
" 6 " 8 " - - - -	26
" 8 " 10 " - - -	17
" 10 " 15 " - - - -	5
" 15 " 20 " - - - -	2
" 20 " 30 " - - - -	2
" 30 " 40 " - - - -	1
Total ——	530

What proportion of these were *unvaccinated* he does not inform us, but from the general tenor of his work and subsequent remarks, we are led to infer that, with the exception of perhaps five, they were all in this condition.

In the *Annuaire des Longitudes* is given a table, formed by M. Mathieu, of the deaths from small-pox in the city of Paris, during the year 1830, arranged according to the ages.

Ages.	Males.	Females.	Total.
From birth to 6 months	4	5	9
" 6 months to 1 year	25	20	45
" 1 to 2 years	21	27	48
" 2 to 3 "	25	43	68
" 3 to 4 "	38	34	72
" 4 to 5 "	38	22	60
" 5 to 6 "	14	17	31
" 6 to 7 "	18	15	33
" 7 to 8 "	6	8	14
" 8 to 9 "	3	6	9
" 9 to 10 "	2	2	4
" 10 to 11 "	4	5	9
" 11 to 12 "	2	3	5
" 12 to 13 "	2	3	5
" 13 to 14 "	1	1	2
" 15 to 20 "	24	15	39
" 20 to 25 "	22	8	30
" 25 to 30 "	13	12	25
" 30 to 35 "	5	2	7
" 35 to 40 "	0	1	1
" 40 to 45 "	0	1	1
" 45 to 50 "	0	1	1
" 50 to 55 "	0	1	1
" 55 to 60 "	0	1	1
" 60 to 62 "	0	1	1
Total,	269	255	524

From these tables, recorded by M. J. B. Bousquet in his work upon variolous or varioliform eruptions, prepared by direction of the French government, in 1833, the inference may be drawn that small-pox is very rare from birth to 6 months of age; on the contrary it is very common from that period to 7 years, and again, from 15 to 30 years, the interval being passed in greater security, which will hereafter be seen to be the probable result of vaccination.

In the epidemic of Marseilles no infant under 3 months of age was attacked.

In his volume upon the Wurtemberg epidemic, Keim gives the ages of 37 persons attacked with natural small-pox to have been:

Under 3 years of age,	20
From 15 to 22	7
" 30 to 40	4
Unknown,	6
	— 37

From the London bills of mortality calculations have been made that at the commencement of the eighteenth century about one-fourteenth of the population died of the small-pox.

In Boston, Mass., the small-pox prevailed epidemically in 1649, 1666, 1678, 1690, and 1702, at the last period 302 died, being not far from 44 per 1000 of the inhabitants. In 1721 it prevailed again, and with great violence, for 5759 persons (more than half the inhabitants), had it in the natural way, of whom 844, or 1 in 7, died. In this same year the practice of inoculation was introduced, and 247 underwent the operation, of whom 6, or 1 in 42, died. The remaining tables of that city I reserve till upon the practice of inoculation, for in them is displayed the great con-

trast, even at that period, of the comparative fatality of the natural and the inoculated small-pox."

The following table of the deaths by variola, at Copenhagen, from 1749 to 1808, is collected by Dezeimeris from the records of Denmark:

From	1749 to 1758	2991	persons.
"	1759 to 1768	2068	"
"	1769 to 1778	2224	"
"	1779 to 1788	2028	"
"	1789 to 1798	2920	"
"	1799 to 1808	724	"

This sudden decrease can only be ascribed to the introduction of vaccination, under which head I shall examine more in detail the last decennial period, in the first two years of which (1799 and 1800) vaccination had not been introduced.

In the second Annual Report of the Registrar-General of Births, Deaths, and Marriages in England, published in 1840, it is shown that the deaths from small-pox in 324 divisions of the kingdom, from July 1st, 1837 to Dec. 31st, 1839, amounted to upwards of 30,819 persons, being, on an average, about 12,000 per annum; now, taking the allowed mortality at 1 in 4, or 25 per cent. of those attacked, and it follows, that nearly 50,000 cases of small-pox occurred during that year. Moreover, the total number of deaths in England and Wales, with a population of 13,897,187, (according to the census of 1831,) from July 1st, 1838 to June 30th, 1839, inclusive, was 331,007, of which 13,023 were deaths by small-pox. The number of deaths in England and Wales for the year 1838 was 342,529, of which small-pox was the occasion in 8,639 males, 7629 females,—total 16,268, making a proportional per cent. of 5·125 in males, and of 4·710 in females.

From the following table of the ages of 8,714 persons who died of this disease in 1839, prepared, probably, without reference to vaccination, (for of this point I do not find any mention made,) the disease appears at least more fatal, if not more general, in its attacks upon infancy and childhood under the age of 10 years; nor does it appear, as some writers would have us imagine, that those under 6 months escape with impunity:

MONTHS. Ages.	Males and Females.	YEARS Ages.	Males and Females.	YEARS Ages.	Males and Females.	YEARS. Ages.	Males and Females.
0	202	1	1524	25	148	65	10
1	181	2	1197	30	93	70	10
2	162	3	869	35	75	75	4
3	456	4	628	40	43	80	10
6	646	5	1122	45	22	85	1
9	588	10	206	50	13	90	0
		15	226	55	10	95	1
Total,	2235	20	240	60	19	Uncert.	8
						Total,	8714

Our conclusions then are:

1st. That small-pox is more frequently a disease of early childhood.

2d. That it appears to have increased in frequency.

1. *Inoculation.*—The first systematic attempt to check the ravages of this fatal scourge was made in 1722, by the introduction of the practice of

inoculation with the small-pox into Europe from Turkey. Previous to this period, however, a work had been published in England (1714) by Dr. Timoni, of Constantinople; and also in 1715 one by a surgeon who had been in Turkey, Mr. Kennedy, advocating this mode of practice. Somewhere during the year 1717, Lady Mary Wortley Montague, wife of the British ambassador, Mr. Wortley, and at that time residing with her husband in Constantinople, caused her son Edward to be inoculated for the small-pox by Mr. Maitland, the surgeon of the embassy. In her letters home about this period she praises in the highest terms the new practice; and after her return, in 1722, she caused her daughter to be inoculated by the same gentleman, which was the first step towards the general introduction of the practice. The second individual was the daughter of Dr. Keith, of London; some of the royal family were also inoculated at a very early period, but still the practice did not at once meet with general favour.

A greater fatality seems to have attended its early course than existed in those countries from which it was introduced, arising, it may be, from inattention to previous treatment, for this fatality appears to have diminished as the operation became more generally diffused. Thus during the first eight years after its introduction 845 were inoculated, of whom 17 died, rather above 2 per cent.; according to Dr. Cross, 897 individuals submitted to this operation during these first eight years, of whom 17 died, rather below 2 per cent.; if we adopt either of these estimates we shall find the ratio of mortality to be greatly diminished below that of the small-pox in its natural form. Dr. Jurin examined the London bills of mortality for the period of 52 years, and estimates, that of all those attacked with the natural small-pox, of whatsoever age, one in five or six dies; but of the inoculated only one in fifty dies.

In the city of Boston (consult Shattuck on the Vital Statistics of Boston), the small-pox appeared as an epidemic in 1721, 1730, 1752, 1764, 1776, 1778, 1792, with varying degrees of fatality. The subsequent table presents in beautiful contrast the effects of the natural and the inoculated small-pox:

Year.	Cases.	Deaths.	Ratio per 1000 of the population.		Natural.			Inoculated.		
			Sick.	Died.	Cases.	Deaths	Ratio per 1000	Cases.	Deaths	Ratio per 1000
1721	6006	850	546	77	5759	844	148	247	6	24
1730	4000	500	266	33	3600	488	135	400	12	30
1752	7669	569	489	36	5545	539	97	2124	30	17
1764	5646	170	364	11	669	124	185	4977	46	9
1776	5292	57	411	10	304	29	95	4988	18	5
1778	2243	61	166	4	122	42	344	2121	29	9
1792	8346	198	460	10	232	33	142	8114	165	18

During this latter year (1792) the town is estimated to have contained about 18,000 inhabitants, of whom 10,655 were supposed to have had the disease, 262 removed out of town, and 221 only of those who were liable escaped.

It has been calculated, that in England during the last thirty years of the last century, when the small-pox inoculation was most in vogue, the mortality from being one-fourteenth of the entire population, had augmented to one-tenth. Sir Gilbert Blane estimated the annual loss of life in Great Britain and Ireland during this period at 36,000; and Dr. Lettsom estimates it to

have been 34,260; even this he considers below the truth. In these estimates, laid before the Committee of the House of Commons, the latter gentleman asserts, that in the 42 years between 1667 and 1722, the average number of deaths by the small-pox was to the entire number of deaths from all diseases as 72 to 1000; but that in the 42 years from 1731 to 1772, when the practice of inoculation was in constant use, the proportion was 89 in 1000. The former gentleman also advanced the calculation of Dr. Heberden before the same committee, making the deaths by the small-pox during the first thirty years of the last century to have been 70 in 1000, but during the last thirty years 95 in 1000.

Condamine in France, and Rosenstein in Sweden, calculate the deaths under the same circumstances to have been one-tenth of the births.

Great respect must also be given to the opinion of Dr. Gregory, of the Small-pox Hospital in London, who, as late as Feb., 1845, has taken the ground that it is unwise to prevent variolous inoculation entirely. He argues, that since small-pox after vaccination proves fatal at the rate of 7 per cent., while inoculated small-pox is only fatal in one-fifth per cent., therefore, persons verging on puberty might, with increase of safety, be inoculated, even if they have been vaccinated in infancy.

This apparent increase is beyond doubt deceptive, for while the actual mortality of the mass was increased, the individual was better protected. By the practice of inoculation the seeds of the distemper were kept ever alive, which, like a spark upon the hearth, the breath might fan into a flame. While confined to the individual it was comparatively a safe agent, but when bursting from control it rushed through the community its march was terrific, and for that outbreak the germs always existed.

The practice of inoculation with the small-pox was then to the individual one of safety, but to the mass of society fraught with danger.

2. *Secondary Small-pox*, or the occurrence of the small-pox after the individual had once had the disease, whether by inoculation or in the natural way, (for to this I would here restrict the term,) is found to have been of much greater frequency than physicians in general allowed or acknowledged, till since the introduction of vaccination. Some data to bear upon this point, if introduced in this place, may serve in a measure to fix our ideas, previous to an examination into the subjects of vaccination and of revaccination.

It is a matter of experience that those who pass in safety through one epidemic may be attacked in the next. Probably this arises from no change in the nature of the variolous virus, to whose influence they are exposed, but from some modification in their own habits and constitution, by which they are rendered, so to speak, more susceptible of its influence at one time than at another. A French writer, in speaking of the epidemic at Provence, describes it as "an epidemic so terrible that old men of seventy-four years, whom the small-pox had, so to speak, till then forgotten, finally paid their tribute to it, and several among them became its victims." The Royal Society reckon that there were in Marseilles, during the epidemic of 1827, among the rest of the population, 2000 who had had the variola previously; of these about 20 were attacked with the prevailing disorder, and 4 of the number died.

Dr. Cross, in his work already referred to upon the variolous epidemic of Norwich, remarks, that in *several* instances he had met with severe small-pox in adults who had, at various times before, both in Norwich and

London, resisted the intimate and continued exposure to contagion, and who had, therefore, good reason to suppose themselves forever free from it. "But" (to use his own words), "the most singular instance of the kind that I have ever heard of was communicated to me lately by my father-in-law, Mr. Bayly, who received the anecdote from one of the Suttons, with whom he was well acquainted. A man who believed himself to have had the small-pox, lived for *twelve* years as a nurse in the establishment for the reception of inoculated patients, which the Suttons had near Norwich, continually waiting upon the patients who were undergoing the disease; and at the end of that time he caught the small-pox, of which he died." He also gives another case of the confluent kind, occurring in a patient aged 24 years, who had been inoculated in childhood, at which time he was covered with a copious eruption and was ill for three weeks.

Unfortunately, I have not been able to obtain access to such statistical documents as will establish the exact proportion of secondary attacks; but, beyond a doubt, at the time of Dr. Jenner's publication of the "Inquiry," it had escaped the attention of medical men, "that small-pox occurred a second time as frequently as it has been proved to do, both by recent experience and past history."

Either the recurrence of small-pox under the following circumstances: previous inoculation, or after the natural disease, was by no means rare; or people were deceived as to the disease itself.

3. *Vaccination.*—Let us now consider that mild operation, intended to protect from the ravages of this fell destroyer, for which the name of Jenner has passed into every tongue and language throughout Christendom. To trace the gradual progress of his mind in the steps taken preparatory to the introduction among mankind of this useful and protective measure, would indeed be interesting, but would lead us too far from our object. From Baron's Life of Jenner it would appear, that the subject had occupied his attention from a period quite early in the pursuit of his medical studies, it being one of those sayings among the country people, that cow-pox was security against small-pox.

Encouraged by his master, John Hunter, who never permitted suggestions to lie dormant in the mind of any pupil, he seems to have fixed an ardent gaze upon this point of vaccination, like a bright star just appearing to the vision of the astronomer in the clear blue firmament, whose track it is to be his duty to discover, and point out. Perplexities and obscurities stood in the way of the calculations, which the bold hand of genius could not overcome, but only the patient onward march of industry. It was not to be the work of days and hours, but of years, spent in untiring effort. From 1775, when, by his own account, he first sat himself down in earnest to the task, until the 14th of May 1796, when the first successful experiment of inoculation with cow-pox virus was performed, by taking matter from the hand of Sarah Nelmes, infected by milking her master's cows, and inserting it into the arms of James Phipps, was but one continued train of experiment, careful investigation, and diligent research; for his was not the mind to allow error to creep in through inadvertence—he worshiped the truth. Every one knows the height to which the mind can be wound, when some great personal interest is at stake; but from this middle of May, to the first of the ensuing July, what must have been the state of Jenner's mind! the test by inoculation with variolous matter had yet to be performed. The altar had been erected, and a victim found; would

the offering be received? It was,—and when, on the 1st of July, 1796, this boy was tested with variolous inoculation, no disease followed, and the chain of evidence was complete.

In 1798, all things having been arranged, Jenner came forth to the world with his Inquiry into the Cause and Effects of the Variolæ Vaccinæ. God bless thee, Edward Jenner, as the nations of this earth have already done thy name, for the words then spoken!

This is not the place wherein to trace the steps by which he became acquainted with the rise and progress of the vaccine disease; it has already been done by abler pens and clearer minds.

From the time of its first introduction, the practice found favour, and was very soon in general use throughout the civilized world:—but whence comes it that, while in the earlier years, the voice of vaccinators was universal and unanimous in favour of its absolute protection, they now hesitate to speak so decidedly of its efficacy? that they now talk of depreciation in the virtues of the vaccine virus, a temporary protection, the degree of constitutional disturbance, number of vesicles, and the like? what is the truth of the matter? perhaps a fair examination of such data as are within our reach may afford an answer. And having already examined into the fatality of small-pox, both before and during inoculation, let us now inquire,—what has been the fatality of small-pox since the introduction of vaccination?

No one, I believe, is willing to allow that the epidemics now occurring, are as fatal as they were; upon this one point all are agreed, that from some cause there do not so many of those attacked by small-pox, die of the disease, as in former years. This cause is vaccination, for where it does not afford absolute protection to the individual, it, in a degree, modifies the disease from variola to varioloid, or, at any rate, mitigates the violence of variola vera.

A table was constructed by Sir Gilbert Blane to illustrate the comparative fatality of small-pox at four different epochs: the 1st, being the 15 years previous to variolous inoculation; the 2d, 15 years after the introduction of inoculation; the 3d, 15 years prior to vaccination, and when, of course, the knowledge of inoculation was most widely disseminated; the 4th, embraces a period of 15 years since vaccination came into general use:—

1st.	From 1706 to 1720	Deaths 79 in 1000	
2d.	" 1745 to 1759	" 89	"
3d.	" 1785 to 1798	" 94	"
4th.	" 1803 to 1818	" 53	"

We have already spoken of the deaths by variola in *Copenhagen* from 1749 to 1808, (the table of which is given on page 122), and we must here add, that

From 1800 to 1804, *not one* case of variola occurred in a vaccinated person.

In 1804, *two* cases of the modified variola, or varioloid, were observed.

In 1805, *five* died of the varioloid.

In 1806, *three* died of the varioloid.

In 1808, there were *forty-six* deaths by variola, thirteen of which were by the varioloid.

Contrasting, then, this entire decennial period (1799 to 1808), with the preceding (1789 to 1798), and the deaths were diminished during the latter by upwards of three-fourths. According to one writer, the annual

mortality during the latter epoch was reduced to 60, but calculations drawn from the statistics of a country are more worthy of confidence than general statements.

Dr. Bremer, of *Berlin*, gives a table, by which it is declared that there died in that city of small-pox,

During inoculation, from 1790 to 1799, 4117
" vaccination, " 1808 to 1817, 1367,

being a diminution by 2750 of the number of the deaths: or there

Annually died during inoculation 412
" " " vaccination 137,

the ratio being diminished by more than one-half. In 1812, the National Vaccine Establishment was founded, and the annual mortality from small-pox diminished to 50; from 1817 to 1821 it was 12; in 1821 and 1822 only *one* death each; in 1823, when small-pox was epidemic in Prussia, there were in Berlin 200 cases, of which 5 died; a result, which is contrasted by Hufeland with the epidemic of 1801, when there were 16,000 cases, of which 1646 died.

In *Sweden* the number of deaths from small-pox were

From 1782 to 1791, 47,587
" 1792 to 1801, 44,184
" 1802 to 1811, 14,904
" 1812 to 1821, 3,309.

During the 25 years preceding the discovery of vaccination, the annual number of patients received into the Small-pox Hospital of *London* was 286; from 1800 to 1824, the average was reduced to 143.

Vaccination was introduced into *Vienna* by Dr. De Carro, in May, 1799. The effect of it was so great, that in the year 1804 only *two* died of small-pox in the whole city, and these two cases were from abroad. By Report of the National Vaccine Establishment, 1812, on the authority of Drs. De Carro and Sacco, Vienna had been free from small-pox for five years, and Milan for eight.

In *Ceylon*, between the years 1802 and 1810, under the direction of Dr. Christie, 128,732 persons were vaccinated, and consequently, the small-pox was unknown from Feb. 1808 till Oct. 1809, when a few cases occurred, which were arrested by timely vaccination.

In the report presented to the Governors of the *London* Small-pox Hospital, Dec. 1818, by Dr. Ashburner, a calculation is made of the number of deaths among the patients admitted 20 years before and 20 years after the introduction of vaccination, showing the deaths

From 1778 to 1798 to have been 1867
" 1799 to 1818 " " 814

A diminution of 1053

In the history of small-pox, by James Moore, Member of the Royal College of Surgeons, published in 1815, may be found the following extract from a letter by Dr. A. Crighton, Knight of the Order of St. Walmoden, and Physician to the Emperor and Empress Dowager of *Russia*, dated at St. Petersburgh, Sept. 12th, 1812. "The whole number of the children inoculated with the vaccine, (from the year 1804 to 1812,) concerning whom the government has received certain information, amounts to 1,235,597. Now, supposing, according to a well-founded calculation, that before the intro-

duction of vaccine inoculation, every seventh child died annually of the small-pox, vaccination has saved the lives, in this empire, of 176,514 children.

Tables have already been given to display the ravages of this disease in the city of Boston, at various seasons during the eighteenth century;—a great contrast will be found in the peculiar epidemic of 1839 and 1840.

During the month of July 1800, Dr. Waterhouse, then professor at Cambridge, vaccinated successfully four of his own children and three domestics, (these being the first vaccinated upon this continent,) not long after which they were inoculated for the small-pox without success, and again after the lapse of seven years with like issue. From this introduction, and the experiment performed, on one of the islands in the harbor of that city in 1802, of inoculating with variolous matter, a number of boys, who had passed through the cow-pox, and thus establishing their perfect immunity, the practice continued to increase, until, by regulation of the Board of Health, it was provided, that every person attacked with natural small-pox, (for the inoculation was forbidden under heavy penalty,) should be removed to the quarantine ground, situated upon an island at some distance from the city. About 1838, this, with other quarantine regulations, was abolished, and in the summer of 1839, the year following, an epidemic of small-pox broke out.

From 1811, when a new system of registration for the city bills of mortality went into effect, to 1838 inclusive, there were but 39 deaths by small-pox in all. In 1839, there were 60 deaths by this disease, and in 1840, they amounted to 116. In fact, such was the virulence of the epidemic, that secondary small-pox, *i. e.*, after the individual had once passed through the disease, whether by the natural way or by inoculation, was of common occurrence,—two cases of this kind, where the previous attack had been natural, fell under my own observation. In May, 1840, a census was taken, by which the number of stationary inhabitants was found to be 84,311 white, and 2,321 coloured; thus plainly showing that this year, when, in truth, many cases of varioloid, in all its different forms, occurred, and when small-pox was evidently and indisputably epidemic, there was but *one* death to 746 inhabitants; in 1792, when it was also epidemic, the population of the city being 18,038, the deaths were *one* in 91 of the inhabitants, the entire number from this disease during the latter year being 198.

An experiment similar to that by Dr. Waterhouse, was performed upon a larger scale by the old *French* committee, in the year xi., (1803): 202 vaccinated persons were inoculated with variolous matter, producing in 84 no effect; in 18 local irritation, but no fever, malaise, or eruption; in one there were two pustules of variolous appearance, such as not unfrequently appear upon nurses and physicians in charge of patients with variola. In 1811, the Minister of the French Interior, in his address introducing the report of the National Committee of Vaccination, asserts, that 1,400,000 children were annually born in the French empire; that in former years, 1,000,000 annually went through the small-pox, of whom 150,000 died. In 1811, there were 70,000 cases of small-pox, and 8,500 deaths.

Data similar to those already given, might be collected from the records of nearly every known nation, proving that the fatality of small-pox, in the entire mass of the population, since the introduction of vaccination, has become of no account. Still, it is established that some cases have arisen, and, therefore, it becomes necessary to extend our investigations.

4. *The recurrence of small-pox after vaccination.*—When we consider the ease and simplicity of the operation, it is not to be wondered at, that many parents and others should have taken upon themselves to propagate the disease, without a requisite degree of acquaintance with the peculiar characters of the genuine vesicle. Besides, as the spurious, equally with the genuine cow-pox vesicle, leaves its scar behind, it will be very difficult, if not impossible, for the physician to determine in after years with regard to the genuineness of the disease. After such imperfect protection an attack of small-pox might be expected; but it is alleged, that the cases of secondary small-pox, or small-pox subsequent to vaccination, are increasing in frequency of late; and having now become so numerous as to prove the fallacy of the argument from the spurious vesicle, an explanation must be sought from another source. The great objection to all data here, and one which I do not know how to obviate, is, that out of the vast number, not only bearing upon this point, but also upon revaccination, the actual proportion, in which the previous operation proved successful, cannot be ascertained. The best and most certain method would be, for a body of physicians to record the cases of secondary small-pox in individuals, whom they had themselves vaccinated, and whose vaccinations they had marked in their note-books as perfect; in the absence of data so convincing, we must take what we can find.

Let us return once more to the statistics of *Copenhagen*, as furnished by Dezeimeris, in the *Encyclographie des Sciences Médicales*, for Oct. 1838. From the year 1808, (consult page 12,) the number of the vaccinated attacked with variola or varioloid, continued to increase until 1819, when they attracted universal attention. In 1823, an epidemic broke out, and the erection of a special hospital became a measure of necessity. Of this, Dr. Nicholas Christian Moche was appointed physician, from whose reports are drawn these tables.

From the 1st of January, 1824, to Feb. 28th, 1825, there were received 412 cases, of which 40 died; of these

257 had been vaccinated,
58 had had the variola,
97 had neither been vaccinated nor variolated.

Of these, 16 were cases of true variola, of which 3 died, but what proportion occurred among the vaccinated, if any, is doubtful.

From the records of the same hospital it appears, that another epidemic broke out in Sept. 1825, and continued to the middle of 1827, in which time were admitted 623 cases of variola or varioloid; of these, 438 had been vaccinated, of whom 26 had the genuine variola, and 2 among them died.

A third epidemic continued from March, 1828, to July, 1830, during which period 562 cases were admitted, the care of the hospital having passed into the hands of Dr. Wendt. There were attacked with true variola 111, viz.:—29 vaccinated, of whom 4 died, or 1 in 7; 1 doubtful; 81 not vaccinated, of whom 24 died, or 1 in $3\frac{1}{2}$.

From Aug., 1832, to the end of 1834, there raged a most violent epidemic; cases admitted, 1045; deaths, 45; viz.:

147 unvaccinated, of whom 34 died, or 1 in 4,
898 vaccinated, " 10 " or 1 in 90,

All the deaths occurred among the cases of *true variola*, being 179, viz.:

119 unvaccinated, of whom 34 died, or 1 in 3½,
60 vaccinated, " 10 died, or 1 in 6.

From the middle of May, 1835, to the end of that year, there were admitted to the hospital 1197 cases, of which 106 died. Of these there were

Vaccinated, 1043, of whom 47 died, or 1 in 22,
Unvaccinated, 123, of whom 51 died, or 1 in 2½,
Doubtful, 31, of whom 8 died,

The reports from the *London* Small-pox Hospital, under the charge of Dr. Gregory, furnish evidence every way as conclusive, with regard to the recurrence of the disease after vaccination, and moreover, that this tendency is on the increase, e. g.

For the 25 years preceding the discovery of vaccination the annual average was	286
From 1800 to 1824 the annual average was	143
In 1825 " "	419
From 1826 to 1837 the annual average was	270
From 1837 to 1838 " "	740

In 1823, Dr. Gregory published a table from which are drawn the following proportions of persons attacked after vaccination.

In 1809	one in 36	In 1819	one in 6
In 1810	" 30	In 1820	" 6
In 1811	" 15	In 1821	" 4
In 1814	" 20	In 1822	" 3½
In 1815	" 17	In 1838	" 2½
In 1818	" 6		

The following table, exhibiting the comparative fatality of small-pox among the unprotected and vaccinated at the small-pox hospital, London, during the epidemic of 1830, also presents the fatality of variola after vaccination in contrast with that before.

	Unprotected.		Vaccinated.	
	Admitted.	Died.	Admitted.	Died.
Confluent	295	149	56	21
Semi-confluent	78	8	42	4
Distinct	19	0	20	0
Total normal	392	157	118	25
Confluent modified	2	0	38	4
Semi-confluent modified	1	0	28	1
Varicelloid	1	0	114	1
Total abnormal	4	0	180	6
Grand total	396	157	298	31

In 1836, there were admitted into this same hospital 329 patients, of whom 128 were after vaccination.

Some remarks were made by Dr. Gregory at a meeting of the Royal Medical and Chirurgical Society, in Dec. 1838, from which has been prepared the following abstract. The examination of from 600 to 700 cases shows a modification of small-pox in 60 per cent. of the vaccinated; of the 40 per cent., in whom unmodified, the results and mortality are the same as in the unvaccinated. In 100 cases of small-pox after vaccination there would be 9 deaths, in 100 cases among the unvaccinated, the deaths would average 25.

The following table, embracing 90 cases, is taken from the *Lancet* for January 19th, 1839, and occurred during the year before.

	Cases.			Deaths.	
Ages.	Before vac.	After vac.	Small and vac.	Before vac.	After vac.
1 to 15	18	28	5	5	
16 to 25	6	16	1	0	1
26 to 35	0	9	0	0	0
36 to 45	0	5	0	0	0
50 to 70	0	2	0	1	0
Total	24	60	6	6	1

In almost direct opposition to the evidence afforded by such documents, M. Bousquet asserts, that "if secondary variola, I mean the true variola, attack one in a thousand of the vaccinated, it is all. Wherefore, it follows, that of ten thousand vaccinated, the small-pox would attack ten, and from this number there will be one death, since it is proved, at least, to decimate those whom it attacks,"—evidently a mere expression of opinion. In this connection it will not be amiss to introduce, from the same author, an authentic account of the epidemic of Marseilles, already alluded to, exhibiting, as it does, the degree of protection afforded by vaccination, the frequency of the recurrence of small-pox after vaccination, and the mortality of variola among the unprotected.

In the same Journal, for Dec. 21st, 1844, we find that Mr. Marson, of the Small-pox Hospital, represented to the Westminster Medical Society, that at no period since its foundation, with the exception of the years 1781 and 1838, had there been so many patients in the hospital. The ages of those admitted after vaccination, in five cases out of six, were between 18 and 23. Where the cicatrix was perfect, the disease was three times less fatal than where it was imperfect.

The epidemic of Marseilles, in 1828, attacked no infant under three months, and no individual above 30 years; now it was estimated by the Royal Society that there were in the city 40,000 inhabitants of this condition. These it divides into three great classes, viz.:—

30,000 vaccinated; 8,000 not vaccinated; 2,000 variolated.

Of the vaccinated 30,000, there were attacked 2,000, or one-fifteenth.
" unvaccinated 8,000, " " 4,000, or one-half.
" variolated 2,000, " " 20, or one-hundredth.

Of the 2,000 cases among the vaccinated 20 died, or one-hundredth.
" 4,000 " " unvaccinated 1,000 " or one-fourth.
" 20 " " variolated 4 " or one-fifth.

Dr. Cross gives five cases of small-pox after vaccination, of which he was informed by his correspondents, and adds: "If we consider, that above two-thirds (87) of all the medical men within a district comprising not less than 350,000 inhabitants, communicated to me their opinions; and that, after the end of the year 1819, I continued my researches in every quarter where I heard of reported failures, up to the time when I arranged this sheet, (May, 1820,) it is scarcely assuming too much to state, that it is probable this contains nearly every fatal case of small-pox which occurred, during the epidemic, in the country around Norwich, in persons believed to have been vaccinated. The number is reduced to *one*, who was attended during the fatal disease, by the surgeon who vaccinated him, *another* vaccinated by an unknown medical man, and *three* by old women; and compared with the number vaccinated, and the great proportion of those who

must, within the last year and a half, have been exposed to the small-pox, we may regard it as a triumphant proof of the fatal effects of the latter disease being generally prevented by the cow-pox." Upon the same authority it is asserted, that the 200 cases of small-pox after vaccination, recorded by Pougen, were without danger; Hugo's 50 cases at Crediton terminated favourably; and, in short, that nearly all the cases of *modified* small-pox related by some writers, English and German, were without danger.

In 1812, a document was drawn up by MM. Berthollet, Perce, and Halle, for the Provincial Vaccine Institutions throughout France, by order of the government; in this it is affirmed, that of 2,671,662 persons *properly* vaccinated in France, only 7 cases of subsequent small-pox appear, or 1 in 381,661; and well-authenticated instances of *secondary* small-pox are far more numerous, in proportion.

In the epidemic of Tuttlingen. 1833, Dr. Rösch had charge of 59 cases of small-pox, 52 of which were in the vaccinated.

In 1831, Gambriani gives 748 cases of various degrees of variola, 643 of which occurred in the vaccinated.

Thus, perhaps, sufficient statistical evidence has been brought forward to establish the fact of an increasing recurrence of small-pox after vaccination—an increase greater in proportion than the increase of population, or the increasing numbers submitted to the operation, whereby, of course, an occurrence at first quite rare would be rendered very common, can be allowed to account for.

The disease occurs either in its natural state, as the true variola, or modified, as the varioloid; for often the variola does not show itself after vaccination with its own peculiar attributes, but is mollified and modified, whence the name *varioloid*, evincing, at the same time, the form and the nature of the disease.

5. *Vaccination as affected by the lapse of time.*—Some have even gone so far as to raise the question with regard to the degeneracy of the vaccine virus in use at the present day, but the opinion is rather one of speculation than of actual value. In fact, it is incorrect; the only experiments I am aware of, being in Germany, and the effect of inoculation then, within a short time of vaccination, was, as in the days of Jenner, confined to local irritation. One of two things must be allowed: either there has been a degeneration of the virus, or the protection afforded by vaccination is temporary. To my own mind, the data about to be brought forward, are as well accounted for upon the latter hypothesis as upon the former; and, in the alternative of two evils, not only is it best to choose the least, but the one which rests upon the surest foundation. Moreover, if the virus have actually degenerated, revaccination would prove more successful in those most recently vaccinated, but the contrary has been found true, the success of revaccination depending upon the lapse of time since the first performance of the operation.

The first data which I shall bring forward under this head, are from the work of Thomas Brown, *On the Anti-variolous power of Vaccination*, being an abstract of 48 cases, in which variola appeared in some form after vaccination. It is given merely because the volume from which it was obtained is now before me, and I did not feel authorized wholly to exclude the data of any one; but from the looseness with which the cases are recorded, the want of distinction between the true and the modified variola, and more than all, the avowed prejudice of the author, not much confidence

can be placed in them. One fact they certainly establish, that the vaccinated are comparatively free from the fatality of small-pox; for, while the epidemic was raging with such virulence around, that many even among the vaccinated were attacked with it in a modified form, out of the 48 cases there was not a single death. Of these 48 there were

20 from 2 to 5 years of age,
24 " 5 to 10 " "
1 " 10 to 15 " "
3 not mentioned as to age.

The date from vaccination was

	Under	6 months	in	1
From	1 year	to 18 months	in	1
"	18 months	to 2 years	in	1
"	2 years	to 30 months	in	4
"	30 months	to 3 years	in	6
"	3 years	to 5 years	in	17
"	5 years	to 10 years	in	18

The cicatrices were

Distinct in 28
Large in 12
Small in 2

Not mentioned in *six;* the form of attack seems to have been the same in all; the universal result was recovery.

In 1823, Dr. Gregory furnished a table of the relative ages of 137 persons attacked by small-pox after vaccination, as follows:—

Below	10 years	of age	5
From	10 to 20	"	76
"	20 to 27	"	56

Of the patients admitted to the hospital, under his charge, in the epidemic of 1836, in all 329, of whom 128 had been vaccinated, the ages were

From	1 to 5	years	(inclusive)	0
"	6 to 10	"	"	2
"	11 to 15	"	"	11
"	16 to 20	"	"	40
"	21 to 25	"	"	49
"	26 to 30	"	"	20
"	31 to 40	"	"	5
Beyond	50	"		1

The language of this gentleman, as reported in one of the public journals, was: "It is no proof that the vaccination has been perfect, because the child has been exposed to small-pox and did not receive it. Puberty and other changes which take place in the system, between the ages of 15 and 25, put vaccination to the test. All the severe cases of small-pox after vaccination, which he had seen, had, without a single exception, occurred 15 years after the latter affection. He had seen no severe case which occurred at a period shorter than this. One or two very mild varioloid cases had occurred in children between 8 and 9 years of age; none, even of this form, earlier. The earliest death from small-pox after vaccination was at 15, and the mortality increased as the persons advanced in life, the greatest number occurring from 25 to 30." The assertion contained in this latter sentence does not exactly coincide with the rate of mortality, as presented by the tables of this very hospital, during the epidemic of 1838, from which it will be seen, that the greatest number of

cases and proportional mortality were both in the unvaccinated and the vaccinated between the ages of 15 and 25, or more especially from 20 to 25. Of the vaccinated, who were admitted, 114 had the varicelloid; 66 had the disease, severe at first, but shortened and modified in its subsequent stages, while 118 (or 40 per cent.), underwent the disease in a regular, normal, or unmitigated form; and in them the rate of mortality was nearly the same as in those who had never been subjected to the operation. This is the table:—

Ages.	Unvaccinated.		Vaccinated.	
	Admitted.	Died.	Admitted.	Died.
Under 5 years of age,	42	20	0	0
From 5 to 9 inclusive,	37	11	5	0
" 10 to 14 "	30	8	25	0
" 15 to 19 "	104	32	90	6
" 20 to 24 "	115	50	106	16
" 25 to 30 "	45	23	55	8
" 31 to 35 "	12	7	13	1
Above 35 years of age,	11	6	4	0
Total,	396	157	298	31

At the meeting of the same society where the remarks above given were made by Dr. Gregory, it was asserted by Dr. Copland, that from data collected by himself he was convinced, that the protection of vaccination did not extend beyond a seventh or eighth year; the small-pox would then be modified, but unmodified generally from the fifteenth to the nineteenth year,—at first, the protection was perfect, then imperfect, this imperfection gradually increasing in degree with the lapse of time.

In the first *Copenhagen* epidemic recorded by Moche, from Jan. 22d, 1824, to Feb. 28th, 1825, of the 257 vaccinated who were attacked, the ages were:—Under 7 years 24
From 7 to 11 " 42
" 12 to 23 " 191

In the epidemic of the same place from March, 1828, to July, 1830, when 562 cases were admitted to the special hospital, "one only among the vaccinated was but four years and a half old; the others were adults, and had almost all been vaccinated in the earlier years of the introduction of vaccination into Denmark."

From another table by the same author, it appears, that of 653 cases of *modified* small-pox, the ages were,—Under 10 years 82
From 10 to 20 " 356
" 20 to 30 " 209
Above 30 " 6

and that not a single case of true variola appeared in a child under 14 years of age; not a single case of mortal variola in an individual under 23; and not a case of any form of variola in a revaccinated.

Of the 1197 admitted to the hospital from May 11th, 1835, to the end of that year, 1043 had been vaccinated, among whom were 47 deaths, not one of which was in an individual under 18 years of age, three were in the eighteenth or nineteenth year, and all were removed by more than fifteen years from the date of their vaccination.

It were well to take one more glance at the table of M. Mathieu, to be found upon page 000.

Heim has given the ages of 176 persons attacked with variola vera after vaccination, as follows:

	Under	5 years	6
From	5 to	9 "	9
"	10 to	15 "	31
"	15 to	20 "	46
"	20 to	25 "	39
"	25 to	30 "	30
"	30 to	35 "	15
			176

From yet another table by Dr. Heim of the vaccinated who were attacked by modified small-pox during the Wurtemberg epidemic, the whole number of cases being 1025, the ages were

	Under	10 years	94
From	10 to	20 "	1107
"	20 to	30 "	502
"	30 to	35 "	22

In an epidemic observed by Rösch. of Trossingen, out of 58 cases of small-pox after vaccination, there were

Under	10 years of age	7
From	10 to 20 years	29, of whom 2 died.
From	20 to 30 years	22, of whom 2 died.

Of these, the 7 under 10 years of age were mild, without a death; of those from 10 to 20 years of age, 13 were mild, 12 moderately severe, 2 dangerously affected, and 2 (one aged 11, and the other 19 years), died; of those from 20 to 30 years of age, 13 were moderate, and 9 severe, so that of the latter 2 died.

In *Sweden* there were, in 1834, 560 deaths from small-pox, of which 103 occurred in those vaccinated in infancy, all of them being upwards of 15 years of age. A result nearly similar was obtained by Hedlund, who found that of 69 persons attacked with true variola, 34 were adults, whose vaccination dated from 16 to 18 years previous; in the same epidemic he met with 91 cases of varioloid.

But when do these cases usually occur? Not in common times and seasons, but when the epidemic has reached its acme. At the commencement such cases are not found, nor yet at the end, in so great numbers, for the course of small-pox is to increase at an accelerated and then at a retarded rate, until it has reached its acme in numbers and virulence. At this time the cases of variola, or of the varioloid, appear in the vaccinated, and not till this time, when the disease is doing its worst in the most concentrated and virulent form of the contagion; and they decline with the disease, which "declines first at a slightly accelerated, then at a rapidly accelerated, and lastly at a retarded rate, until it attains the minimum intensity, and remains stationary."

Thus might we go on accumulating evidence from the history of every epidemic which has visited the civilized world within the past ten years, whereon to rest our conclusions, but enough data, it seems to me, have been advanced from which to make the following deductions:

1st. That the protecting power of vaccination is perceptibly diminished by lapse of time; the gradations being perfect security, the varioloid, variola.

2d. That at the period of puberty a change takes place in the constitution by which the immunity is greatly diminished, and that *prior* to this period we never find true variola to occur after vaccination.

Can any evidence as to the safety of the individual be drawn from the character of the cicatrix? I think not; because the cicatrix or scar is but the evidence of some injury to the structure of the part, and it certainly would be most absurd to expect this to fade away at just the right moment. Allowing that the shape, indentations, and other peculiarities of the vaccine-scar permit us to distinguish it from any other, still all this only shows that in time gone by there was a peculiar sore in this spot, which has left its marks behind. It does not show the degree of constitutional disturbance, if any, nor yet does it reveal to us whether any of those many injuries to which it was constantly exposed, happened to the vesicle in its course by which the effect was lost.

Not much time need here be spent in the collection of data, and we will begin our researches by including nearly all the cases already given of small-pox after vaccination, the scar upon the arm being regarded as evidence that it had been performed. Great weight must also be placed upon the success of revaccination in such cases, and which will be found recorded under that head: in this place I shall content myself with two instances only.

The first is from the Wurtemberg epidemic, in which, "of 1055 cases of small-pox, in which the marks were visible, 914 had good, and only 141 imperfect marks; 147 of these, notwithstanding that the vaccine marks were normal, were cases of genuine small-pox."

The second is the opinion of Dr. Gregory, whose experience certainly has been most extensive, who does not consider that the character of the cicatrix affords any evidence of the success of the operation, nor yet of the small-pox, which may afterwards occur. Moreover, that in the very worst cases which he had witnessed after vaccination, there were excellent cicatrices. "Two persons in whom the vaccination had been perfect, died," one aged 29 years.

The cicatrix, then, affords no evidence of the security of the individual, or the success of vaccination.

Age.—It is a matter of some moment to determine the age at which vaccination should be performed in order to secure its beneficial effects. That it may be performed at too early a period, there can be no doubt. From an examination of the tables of deaths from small-pox, given page 130 and page 131, and from the fact that during the Marseilles epidemic no infant below three months of age was attacked, I am inclined to fix upon the period from three to six months, about which time the variolous inoculation was performed. This early performance is indeed objected to by some German authors, but not, as it seems to me, upon sufficient grounds, for while they advise that no child should be vaccinated within the first twelve months, because the vesicles do not then appear so perfect, others are of opinion that the vesicles are full as brilliant, and the operation as effective at an earlier date.

Great stress has been laid by some of the recent European writers upon the number of vesicles and the degree of constitutional disturbance, as affecting the protective power; but it may be questioned whether the effect of the punctures is as likely to be merely local at a primary as upon a subsequent vaccination. This point is not then one of much importance; for an equal

degree of protection is afforded by one or more vesicles, provided only that the evidence of constitutional disturbance be plainly marked.

When, therefore, the course of the vaccination has been regular from first to last,—the vesicles undisturbed,—the areola not too extensive,—attended by a certain amount of general febrile disturbance,—the individual labouring under no other disease to modify its influence,—then may we pronounce the vaccination to have been perfect.

The protection thus afforded the individual is perfect for the first few years, it then becomes imperfect, and the individual (if exposed) is liable to be attacked by some of the varioloids; finally at puberty such change takes place in the constitution that many individuals lose even this degree of protection, and become again liable to the true variola. Vaccination performed after this period may be considered in most cases to afford absolute protection.

6. *Revaccination.*—Within a very short time the practice of revaccination has been introduced, as affording protection under circumstances where the primary operation failed. The limited period which has elapsed since the practice came into notice, renders it almost impossible to judge with accuracy of its ultimate effects. This must be determined by the lapse of time, and the return of several epidemics.

If, as was the opinion of Jenner, and has recently been perfectly established by the experiments of Dr. Sunderland, of Bremen, Dr. Thiele, of the southern part of Russia, and Mr. Ceeley, of Amesbury, England, (all of whom have succeeded in producing the regular vaccine disease by affecting the cow with small-pox,) the variolæ vaccinæ are a mild or modified species of the small-pox, then must they follow in a mild or modified degree the same laws which regulate the small-pox. If then the latter does not afford perfect security from a subsequent attack of the disease, neither yet can the former be expected so to do, for if it be modified its protective power must be modified also.

As a measure of security revaccination is evidently required in all cases where the success of the primary operation is doubtful, and if our deductions be allowed, it must be performed about the period of puberty, not only with the view to expediency, but even to *protect* in case of the eruption of an epidemic.

The revaccinations in the Danish army for 1837–8 display, in a remarkable manner, the negative evidence of the cicatrix, and also the increased protecting power of revaccination.

Year.	Number Re-vaccin.	Cicatrices of former Vac.		Result of Revaccination.		
		Distinct.	Indistinct.	Genuine Ves.	Not Gen. Ves.	No Result.
1837	3741			1601	1015	1125
1838	3721	3317	404	1464	1000	1257

Of the number who in 1838 resisted revaccination, 129 had had the natural small-pox, and 111 had been twice revaccinated. In the same year there were, in the whole army, 24 cases of small-pox, partly in children, (modified or unmodified is not stated.) Of the individuals who have been successfully revaccinated, not one has been attacked with small-pox.

But a table of far greater value is contained in the *British and Foreign Medical Review*, for July, 1836, being translated from *Rust's Magazin*, band. xlv., heft. i., 1835. It is entitled, "The Revaccination of the Prussian Army, for 1834."

1. The number of men vaccinated was		44,454
2. Of this number, had distinct marks of previous vaccination		33,634
" "	indistinct marks	7,134
" "	no marks	3,686
3. The present vaccination was regular in its course in		16,679
" "	irregular " "	12,287
" "	without any result	15,488

4. Of the 15,488 in whom the vaccination entirely failed, there were revaccinated a second time 4,530

Of whom took the disease 866

No result 3,664

5. The number of true pustules in those who took the disease regularly was:—

From	1	to	5 in	6,763
"	6	to	10 in	5,028
"	11	to	20 in	4,088
"	21	to	30 in	800

6. Of those who had been previously vaccinated, or on the present occasion were revaccinated and took the disease properly, 79 were affected with some form of variolous or varioloid disease in the course of the year, of whom had

varicella	46
varioloid	31
true variola	2

7. In the whole army, the number affected with varicella, varioloid, or true variola, in the year 1834, were, however, 619, including the 79 just given; consequently, in 540 of these patients the revaccination had been either irregular, had not succeeded, or had not been employed at all. Of these 619 soldiers 38 died of the true variola; of whom 2 had been vaccinated with effect, 6 without effect, and 30 (nearly all raw recruits) not vaccinated at all.

In contrast with this success is the performance of the operation, revaccination, among children, and first, that at the Foundling Hospital, London, in 1839:

1. The number of children revaccinated was		216
2. Of whom went through the disease regularly		11
" " "	irregularly	122
Failures		83
3. Of the 11 who went through the disease regularly, the cicatrices	were perfect in	8
" "	imperfect in	2
	none in	1

4. The youngest of the 11 was aged 5 years, the eldest 13.

Dr. Kirkbride, of Philadelphia, revaccinated 209 children, upon some part of whose limbs a perfectly formed, rounded, stellated or punctated cicatrix was found; the average age was 12 years, the extremes being 6 and 20; of these, 44, or rather more than 21 per cent., had the disease perfectly. There is one more document, by Wendt, presenting a result so nearly similar to the last, that I shall give it:

Age.	Successful Revac.	Unsuccessful Revac.
From 1 to 10 years	33	1
" 10 to 20 "	216	82
" 20 to 25 "	2175	998
" 25 to 30 "	191	76
" 30 to 40 "	123	43
" 40 to 50 "	18	8
	2756	1208

To determine with any degree of certainty the actual value of revaccination will require more time and epidemics than have yet elapsed since its introduction. Of this only are we certain, that it is required in all cases of doubt with regard to the previous operation; and by all the laws of expediency, if not upon yet stronger grounds, within a short period after puberty.

In the number of this Journal for April, 1842, will be found a valuable paper, giving the details of 686 cases of revaccination, by the lamented Dr. Forry, to whose accurate Boylston Dissertation, in the *New York Journal of Medicine* for Sept., 1844, we would also refer the reader.

Art. XIII.—*Case of Imperforate Hymen.* By Jno. Geo. Metcalf, M. D., of Mendon, Mass.

Cases of imperforate hymen occur so rarely that some even doubt the reality of their existence. For this reason, and to preserve a more lasting record of an anatomical curiosity than the note-book of a country physician, the following case is offered for publication.

On the 15*th of May* last, I was called to see Miss G., aged 15. Arriving at her father's house, I found the patient suffering severe pain over the region of the sacrum, extending through in the direction of the pubis; micturition frequent and scanty in quantity; pain of an intermittent character, occurring at short intervals, and has been quite severe for the last two days; the tongue has become somewhat coated, white, but moist; appetite impaired; abdomen neither tense nor tender upon pressure; bowels open; pulse natural.

Upon further inquiry found she had never menstruated. From her age and present symptoms, made up my mind that that function was about to make its appearance, and so made the following prescription. ℞.—Morph. sulph. gr. one-fourth, once in two hours, pro re nata. Stupes to vulva. Pediluvium at bed-time.

May 16*th.* Calling on my patient this morning I found her much relieved from the pain, but there was no appearance of the menses. Finding the bowels were somewhat constipated I made the following prescription:—℞.—Pil. aloet. for cathartic and emmenagogue. Continue recipe of yesterday.

17*th.* Found my patient about her work, the physic having operated well and the pain all gone. No menstruation had appeared. Without further inquiry the case was dismissed.

20*th.* Passing by her father's house this morning, I was again called to see Miss G., who was reported to be quite sick. Entering her room, I found her in great pain, so as, frequently, to make her cry out. On

inquiry, I found the pain seated between the sacrum and pubis, it being sometimes referred to one point and sometimes to the other. There was a frequent and urgent desire to urinate, and the quantity voided was small. The bowels were somewhat tender upon pressure, and a tumour, at the lower part of the abdomen, to which my attention was directed for the first time, was found to be quite tender and painful. Upon a more careful examination of this tumour, it was found to be about the size of a large coffee-cup, and, as felt through the abdominal parietes, filling the hand, with the fingers a little flexed.

An examination per vaginam was now proposed, and, after much persuasion, my young patient yielded a reluctant consent. The examination at once revealed the whole difficulty. The hymen was found to be imperforate. An attempt was made to rupture it with the finger, but gave so much pain that I was compelled to desist.

On more particular inquiry I learned from the patient that she has had sick turns, *about once in a month*, for the last three or four months; being very similar to the present attack, except that the pains were less severe. The tumour had escaped notice until within three or four days of the present time.

Explaining to the patient and her attendant, as well as I could, the nature of her case, and the operation necessary for her relief, I urged its immediate adoption, as the only method of effecting a cure. To this, my young patient, who is a very modest and retiring young lady, could not, for a long time, be brought to yield her assent. But, after further conversation, convincing her that her restoration to health depended upon it, and that the operation would be attended with little or no pain, she concluded to submit.

She was directed to lie down upon the bed so as to have the parts concerned in the operation exposed to the light of a window. Cloths were then placed beneath her to absorb the fluid expected to be set at liberty by the incision. On exposing the patient the mons veneris was found to be covered with a luxuriant growth of hair. Separating the labia externa, at about the depth of an inch, the passage to the vagina was found to be completely closed by the hymen, at the upper part of which the termination of the urethra was plainly seen. The hymen was highly vascular, and *stretched evenly across the passage*, not being convex outwardly as might have been supposed from the pressure of the fluid above.

Taking a broad-shouldered lancet, I carefully dissected from just beneath the urethra, in a perpendicular direction, until I had pierced the membrane so as to admit the egress of a drop or two of the contained fluid. The lancet was now plunged through to the full width of the instrument, and another incision crossing the first at right angles, was then made. This gave exit to a jet as large as a pipe-stem, and which flowed, in a stream, for some seconds, completely saturating the cloths which had been placed to receive it. This fluid was darker than venous blood, but not quite so liquid, and entirely free from any coagulation. Judging, as well as I could, from the size of the jet, and the continuance of its flow, I supposed that very nearly a pint was evacuated. On searching for the tumour before mentioned, it was so much reduced as only to be detected by a very careful examination. The pains had vanished, as if by enchantment, and the patient expressed herself as entirely relieved. The hymen was about half a line in thickness, and very dense and tough.

A dose of morphine was now administered on account of the nervous

irritability, which the exposure and the operation had induced, with directions to repeat the dose should the pain or want of rest, at night, require an anodyne.

From this time there was a moderate discharge for two or three days, when it ceased. The appetite directly returned, and the patient was soon well. Since the operation, the menses have appeared with great regularity, and Miss G. has enjoyed uninterrupted health up to the present time.

Mendon, Mass., *March* 9, 1845.

Art. X.—*On several important points in the Anatomy of the Human Larynx.* By Joseph Leidy, M. D. [With two wood-cuts.]

In the course of a series of investigations of the larynx of mammiferous animals, I was led to the discovery, so far, at least, as regards myself, of several anatomical points in the human larynx, which are not noticed in any of the systematic works on anatomy to which I have had access, and which I have deemed of sufficient importance to present to the scrutiny of anatomists and physiologists, with whom they should claim a greater share of attention than has yet been bestowed upon them, even if the observations be not new.

One of these points is the exact arrangement and relations of the thyro-arytenoideus muscle with the ventricle of the larynx and the thyro-epiglottideus and aryteno-epiglottidei superior and inferior muscles; the other, the extent and relations of the crico-thyroidean membrane.

Upon detaching one ala of the thyroid cartilage from its subjacent connections and throwing it forwards, and removing from beneath the layer of cellular tissue, an irregular layer of muscular fibres will be exposed, extending from the arytenoid cartilage on one side to the entering angle of the thyroid upon the other, and from the superior edge of the cricoid below to the tip of the arytenoid and side of the epiglottis above. Parts of this muscular layer constitute the thyro-arytenoideus, thyro-epiglottideus, and aryteno-epiglottidei superior and inferior muscles.

The thyro-arytenoideus muscle is generally stated as having its origin from the entering angle of the thyroid cartilage, and its insertion into the anterior part of the base of the arytenoid cartilage. But besides this, it will be found the superior portion of the muscle diverges upwards and backwards from its origin, in such a manner as to cover the inferior part of the ventricle of the larynx, and that the most anterior part of this divergent portion is inserted into the side of the epiglottis, constituting what is generally considered as a distinct muscle, under the name of the thyro-epiglottideus.

Passing from the tip, side, and base of the arytenoid cartilage to the side of the epiglottis, is a thin plane of muscular fibres, the superior and inferior edges of which are strengthened by an accumulation of fibres, forming the superior and inferior aryteno-epiglottidei muscles. The inferior edge, which was described a few years since by Mr. Hilton, of London, as a distinct muscle, is stronger than the superior, and is particularly important from its course over the upper part of the ventricle of the larynx. In the preparation, from which the drawing accompanying this paper was taken, this edge is more oblique than usual, and is reinforced by a strong

muscular fasciculus from the thyro-arytenoideus muscle, a condition of things which I have met with several times.

It merely needs reference to the fact, that in the contraction of the muscular layer just described, as a whole, or in part, it must exercise a greater or lesser degree of compression upon the ventricle of the larynx.

Proceeding with the dissection,—if the muscular layer be raised up, the crico-thyroid membrane will be exposed. This will be found to have its origin from the inner circumference of the superior edge of the cricoid cartilage anterior to the arytenoid cartilages, and from the anterior part of the bases of the arytenoid cartilages, and to have its insertion into the inferior half of the entering angle of the thyroid cartilage. Its internal face is in contact with the lining or mucous membrane of the larynx, a good view of it being obtained by dissecting off the latter. Its anterior inferior part is thickened and pierced by several foramina for the transmission of blood-vessels; its superior edge is a little thickened, also, and is on a line with the inferior edge of the opening of the ventricle of the larynx, constituting what is generally described as a distinct structure, under the name of the inferior thyro-arytenoid ligaments or cordæ vocales, but which, as such, really do not exist. More properly this membrane cannot be considered to stop here, as it may be traced, though in a very thinned condition, over the whole of the periphery of the ventricle of the larynx, even so far as the pedicle of the epiglottis.

The crico-thyroid membrane throughout its whole extent is composed of the yellow elastic tissue similar to the middle coat of the arteries, and presents, under the microscope, a good example of this substance, by the aid of which instrument, in fact, I detected the existence of the membrane on the periphery of the ventricles of the larynx.

Not being partial to any peculiar theory in regard to the production of the voice, I present merely the ungarnished facts as existing in my dissections.

Fig. 1.

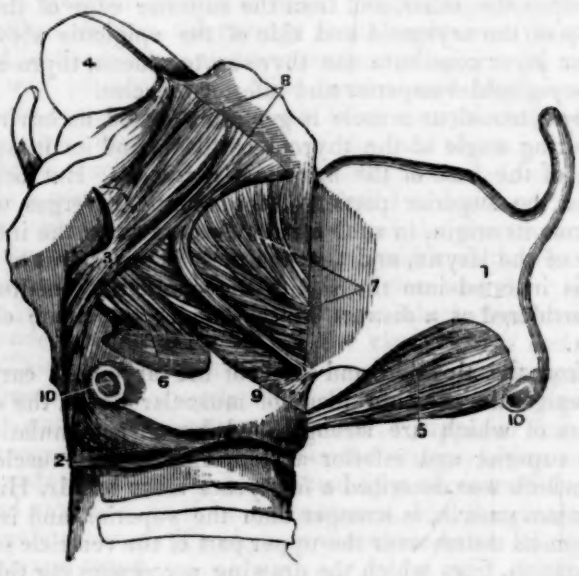

Fig. 1. 1. The right ala of the thyroid cartilage detached from its connections and thrown forwards; 2, the cricoid cartilage; 3, the right arytenoid cartilage; 4, epi-

glottis; 5, crico-thyroideus muscle; 6, crico-arytenoideus lateralis; 7, thyro-arytenoideus; 8, aryteno-epiglottidei; 9, inferior part of the crico-thyroid membrane; 10, 10, capsular articulation of the inferior cornu of the thyroid cartilage with the cricoid.

Fig. 2.

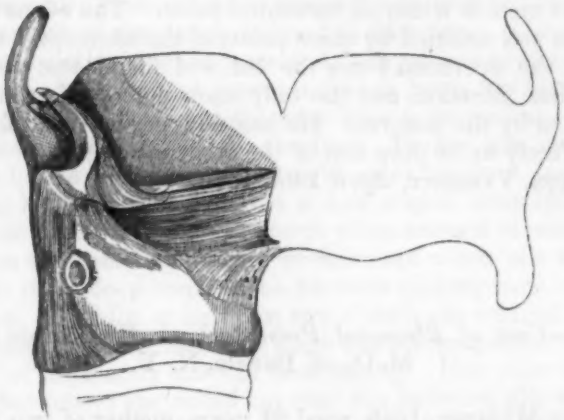

Fig. 2. Represents a lateral view of the crico-thyroid membrane.

Since writing the foregoing, I have seen the fifth volume of the *Encyclopédie Anatomique*, 1845, lately received in this country, in which I notice, on page 224, the following observation: V. Fibres élastiques. Un faisceau de fibres élastiques rayonnantes part de l'angle du cartilage thyroïde, entre les cordes vocales; ces partie antérieure et aux parties latérales du bord supérieur du cartilage cricoïde, sautent ensuite sur l'articulation crico-aryténoïdienne, et s'insérent à l'angle antérieur et au bord du cartilage aryténoïde. Elles entourent aussi les ventricules, pour monter vers les ligaments thyro-aryténoïdieus supérieurs, et trouvent des faisceaux de renforcement dans le ligament thyro-cricoïdien moyen et les cordes vocales. Lauth, *Remarques sur la Structure du Larynx et de la Trachée Artère.* (*Mem. de l'Acad. Roy. de Méd.*, Paris, 1835, t. iv. p. 95.)

Art. XI.—*Case of Congenital Inability to raise the Upper Eyelid cured by operation.* By Chas. A. Hall, M. D., of Burlington, Vermont.

John S. Landing, of South Island, Lake Champlain, consulted me, Feb. 1st, 1846, with reference to his son, a lad five years old, who had been troubled from his birth with an inability to raise the upper lid of the right eye sufficiently to admit rays of light through the pupil. This was productive of considerable deformity, aside from the habit which he had contracted of carrying the head backward and to one side, to enable him to see with that eye. After consulting with my father, Charles Hall, M. D., I informed him that the best chance of cure would result from an operation which I described to him. As the operation appeared quite simple, and would be attended with little or no danger to the eye, he readily consented to have it performed. Accordingly, Feb. 7th, he brought the boy to our

office and I performed the operation, assisted by my father, in the following manner. After raising as large a fold of the integument of the lid as could be conveniently held between a pair of common forceps placed across the lid transversely, I excised the included portion with a pair of curved scissors. The space intervening between the cut edges was about three-fourths of an inch in width at its central point. The edges were brought in apposition and retained by three points of the interrupted suture. Three weeks after the operation I saw the lad, and found that the wound had healed by first intention, and the only scars perceptible were three small ones produced by the sutures. He has now perfect control over this lid, using it as freely as he does that of the other eye.

BURLINGTON, VERMONT, *April* 13*th*, 1846.

ART. XII.—*Case of Placental Presentation.* By GEORGE N. BURWELL, M. D., of Buffalo, N. Y.

MARGARET M'GUIRE, Irish, aged 21 years, mother of two children, sent for me Tuesday morning, October 7th, 1845, represented to be in labour and flooding. I learned she had had a turn of flooding four or five weeks before, which was very profuse, and she sent then for one of our Dutch doctors, who told her it was caused by her lifting a heavy child. She thinks she lost several quarts of blood before it was arrested. From that time until Sunday night, Oct. 5, there was continued slight hemorrhage. On Sunday night there was another large gush of blood; but little during Monday. On Monday night, Oct. 6, it was again very free, amounting, she said, to at least two or three quarts. Her clothes and the bed were completely soaked in blood. On Monday night there was pain for the first time, which she thought to be the commencement of labour. Her full time would have been up, according to her reckoning, Oct. 9th, two days after I was called to her. She had had for two months a pain across and over the pubes, which made all walking painful; and she could never go far without an uncontrollable desire to urinate. She had not been able to do any work of consequence for six or eight weeks.

I found her without pain; face and skin generally pale, and of a waxen tint; eyes dull, with a dark circle around them; lips and nails purplish; skin generally relaxed, and covered with a cold perspiration; which, as turns of faintness came on, would increase until it stood in drops on her forehead and lips; pulse 128 to 132, regular, but very soft and compressible; no thirst; her general appearance, as she lay on her bed was languid and abandoned; she complained of turns of great indistinctness of objects about her, of some flushes of heat over her, and still more of a sense of chilliness along the spine. I found the os uteri one and a half or two inches in diameter, and yielding; the placenta three-fourths or four-fifths over it; leaving an opening between it and the anterior lip of the uterus, through which I could feel the head, but not the sutures; membranes entire; coagula in the vagina; but little hemorrhage at the time. I left her for a short time to call my father in counsel, enjoining perfect rest. He ruptured the membranes on his first examination; the waters escaped very slightly tinged with blood, and with two or three light pains, during one of which she nearly fainted; indeed she herself and her friends thought for

a moment that she was dying. There was only a slight drainage of blood after the waters came away, not amounting to more than three or four ounces in all, until she died. The membranes were ruptured at 9½ o'clock. The head descended so the sutures could be felt, and the os uteri lost that yielding character it had, and felt more rigid and unyielding, as though it were put upon the stretch; such as I have frequently noticed in common labours after the evacuation of the waters before full dilatation. The pain ceased, and the faintness and exhaustion increased. Ergot was next given, both in powder and infusion, at short intervals, for an hour, without any effect. Brandy was given also, freely; cloths were kept to the vulva, by which we could ascertain the amount of the flooding. Perfect rest was enjoined. She was kept in one position (on her right side) for three hours, without once changing it. She soon fell into a half stupid state, lying with her eyes closed and apparently asleep, except when aroused to take her stimulants; or when overcome by a sense of faintness, when she would rouse up with two or three deep respirations, but soon sinking back into her apathetic condition. Finally, at half past two o'clock she vomited, apparently all she had taken during the forenoon; there was a large quantity of it, having a strong smell of the brandy she had been taking. Her pulse immediately increased in frequency; she called out that she believed she was fainting, and threw herself on to her back; she complained of oppression and distress about the diaphragm; her nostrils began to play freely at every breath; a cry accompanied every expiration; her breathing became more and more rapid and short; her eyes rolled up; her face became rapidly more and more sunken; the pulse was soon lost entirely; and shortly she ceased to breathe, except a slight and short heaving of the chest accompanied with some rattling or gurgling in the throat, which continued, at intervals, for fifteen or twenty minutes.

I took the child from her four hours after her death, by the abdominal section. It lay in the first position of the vertex, with the cord twice around its neck. The placenta was attached to the posterior part of the cervix-uteri, with an edge over the mouth of the womb. Every tissue of her body was as blanched as it could have been. The knife had scarcely a stain of blood upon it. There was not the least particle of red tissue in the uterine muscle. The entire peritoneum was as white and blanched as though it had been soaked in water. There was about a teaspoonful of the coagula of blood about the child's abdomen, but no serum nor other evidence of internal hemorrhage. Neither its limbs nor body had the least tinge of blood upon them. The corpse was very warm; in fact, it was warmer apparently than before death. There was not the least muscular rigidity about the body.

Dr. Josiah Trowbridge was added to the counsel about 11 o'clock.

The foregoing was one of those cases calculated, in an especial manner, to try the skill and discretion of the practitioner. The woman heedlessly, and totally unaware of her danger, had allowed the flooding to go on without calling for help, until all the constitutional symptoms of hemorrhage had come on in a high degree. The faintness did not follow a single gush of blood, from which it might be expected she would rally by the use of cordials and stimulants, but it was the result of a long continued drainage of the *pabulum vitæ*, until there was not enough left to keep the machinery of life in motion; and, of course, its working became feebler and feebler as the faintness became more and more profound, until after a sudden but ineffectual struggle for existence, it ceased altogether.

Governed by the obstetric maxim, never to allow a woman to die undelivered, and thinking only to reach this end, we ought to have turned and delivered at once, instead of rupturing the membranes; but hoping that she would rally after arresting the hemorrhage, and feeling that she would die during or soon after the operation, from her continued faintness, we preferred to let off the waters, and to apply the binder to produce contraction of the uterus, and to make the head act as a plug, (in which we succeeded); to assist this contraction and excite pain by ergot, (in which we failed); to give stimulants, (which did not at any time have the slightest effect upon the circulation); and trust to these means and to nature to rally her from her prostrate condition, and cause sufficient pain to force the head within the reach of the forceps. The unfortunate result has been told. How different might it have been had she sent for assistance immediately at the commencement of the hemorrhage, on Sunday evening.

Art. XIII.—*Report of the Medical Society of Virginia, on the supposed Hemostatic Properties of the Brocchieri Water.*

The committee appointed at the last meeting of the society to investigate the styptic qualities of the Brocchieri water, have performed the duty assigned them, and have instructed me to make the following report.

Believing that all experiments made with the Brocchieri water alone, without at the same time testing the relative effects of other styptic remedies, or the unaided hemostatic powers of nature, must be unsatisfactory, and that all of the experiments hitherto performed with the Brocchieri water, as reported to have been made in New York and Baltimore, by Dr. Barrabino, of the U. S. Navy, and others, and on which the alleged virtues of this remedy are mainly founded, have been conducted in this manner, the committee have endeavoured to avoid this source of error, by instituting a series of parallel experiments, by which they think they have been able to arrive at a very satisfactory estimate of the merits of this so called remedy.

The only means by which we can conceive that hemorrhage from an incised or ruptured vessel can be arrested is either by the coagulation of the blood, or by the contraction of the vessel. The committee have endeavoured to test the styptic qualities of the Brocchieri water, by its power of producing either of these two effects.

To ascertain whether the remedy has the power of coagulating blood, one experiment alone was necessary, which was performed as follows:—

Experiment I.—Two equal portions of arterial blood were taken from an incised wound; to one a portion of Brocchieri water was added: the other was left undisturbed. There was *no appreciable difference* in their periods of coagulation.

The following experiments were then made (Experiment II.), to test the positive power of the Brocchieri water to arrest hemorrhage, and (Exper. III., IV. and V.,) to test its power of arresting hemorrhage as compared with the unaided power of nature, and with that of simple cold water.

Experiment II.—A longitudinal incision three inches in length was made, after removing the hair from the part, in the left thigh of a healthy dog; there was free venous and arterial hemorrhage. A pledget of charpie saturated with the Brocchieri water was introduced, and the water freely applied for some minutes, when

the integuments were drawn together by one suture. In eight minutes the bleeding had apparently ceased; on examining the wound, twenty-five minutes after the incision, some other experiments having, in the mean time been performed, it was found to be bleeding freely.

Experiment III.—Two transverse incisions were made upon the right thigh of the same dog, about an inch and a half long, and two inches apart, as nearly alike as possible. There was very little bleeding from either at first; but in about a minute, they were both bleeding freely, and, as far as could be judged, nearly to the same extent. Charpie fully saturated with the Brocchieri water, was applied to one, and the water poured upon it; the other incision was permitted to remain without any application. In eleven minutes from the time of the incisions, the hemorrhage had ceased from both wounds, except some slight oozing, which continued equally from both; there was a coagulum formed in both wounds, which appeared to have about the same consistence in each.

Experiment IV.—The left carotid artery of the dog was next exposed, by making an incision of two inches and a half in length, along the inner margin of the sterno-mastoid muscle, and an artery needle armed with a ligature passed under it, separating it from the jugular vein, and enabling us to raise it freely; compressing the artery at its lower part, a transverse incision was made into it with a pair of scissors, cutting rather more than one-third of its circumference: on removing the pressure from below, the artery bled profusely; charpie fully saturated with the Brocchieri water was immediately applied, and kept firmly pressed upon the artery for sixteen minutes. Upon removing the pressure, the artery was still found to bleed; fresh portions of charpie saturated with the Brocchieri water were applied, and the integuments drawn together by three sutures, thus keeping up some degree of pressure upon the artery. The dog was then removed from the table, was able to walk about, and seemed less exhausted than was to have been expected. In the course of five or ten minutes, the bleeding seemed to have ceased: but in an hour and a half it returned, while the dog was lying quiet, and he died apparently from the loss of blood, three hours after the experiment was begun. Upon dissection, there was a large coagulum in the wound; the artery was found incised rather more than one-third of its circumference, and perfectly free from coagulum, and the par vagum nerve was cut.

Experiment V.—The left carotid artery of a large and vigorous dog was exposed in the same manner as in the last experiment, a needle passed under it, and pressure made so as to arrest the circulation. The artery was then divided transversely, with a pair of scissors, making the incision as nearly like that in the preceding case as possible. On removing the pressure from below the hemorrhage was very profuse, more so than in the other case, owing probably to the more vigorous state of the circulation in the last animal. Pledgets of charpie saturated with *cold water* were introduced into the wound, and pressure kept up for fifteen minutes; on removing the pressure, the bleeding was found to continue, when additional portions of charpie were introduced, and the edges of the wound united by three sutures. The animal was removed from the table but little exhausted, the wound still bleeding a little; in the course of five minutes all bleeding had ceased. The dog lived apparently in good health for twenty-four hours after the operation, having in the mean time eaten the food which was given to him, and appearing as lively and in as good condition as before the operation. At the expiration of that time, a dose of strychnine was given to him, of which he died in about twenty minutes: it is worthy of note that, during the violent convulsions produced by the operation of the strychnine, by which the lint was pressed out from between the sutures, no hemorrhage at all occurred. Upon dissection the wound was found filled with a firm coagulum, and the artery incised rather more than one-third of its circumference, but free from coagulum.

There are three other experiments, performed on *human* subjects, which have come to the knowledge of the committee, which they deem it proper to bring to your notice, two of them performed under the eyes of members of the committee, and the other communicated to us by two responsible members of the profession.

Experiment VI.—A child had an appendage to each of its little fingers amputated by Dr. Haxall; the incisions exposed a nutritious artery in each, which bled very freely. He applied the Brocchieri water upon lint, and continued the appli-

cation for about fifteen minutes without any appreciable diminution of the hemorrhage; these applications were then removed, and the wounds were dressed with dry lint confined with a bandage; the hemorrhage was arrested in a few minutes.

Experiment VII.—In a case of ectropion in the infirmary of the medical college, an oval piece of the everted conjunctiva was cut out; a large mass of vessels being thus cut, free hemorrhage took place. Charpie saturated with the Brocchieri water was applied, and the water freely poured upon it for about five minutes; no appreciable effect was produced by the application, and at the end of twenty-five minutes, the wound was still bleeding. The ordinary dressings were then applied, and the hemorrhage soon ceased.

Experiment VIII.—Drs. Chamberlayne and Conway were called to a patient with a wound in the scalp; a circular portion of the scalp upon the posterior lateral part of the parietal bone was found cut out, and a branch of the occipital artery was bleeding freely. The Brocchieri water was applied to the wound upon patent lint, and the application kept up for fifteen minutes, with no appreciable effect upon the flow of blood. These applications were then removed, and the wound dressed with dry lint; in a few minutes all hemorrhage ceased.

The committee are of opinion that, from these experiments, the following conclusions may be drawn:

1st. From Exper. I., that the Brocchieri water has no power of coagulating blood.

2d. From Expers. IV., VI. and VIII., that the Brocchieri water has no power of producing contraction of the coats of an artery. And having established these two facts, as coagulation of the blood and contraction of the artery are the only means by which we can conceive that hemorrhage can be arrested, we might have terminated the investigation. But to apply these experiments practically—

3d. We conclude, from Expers. II. and III., that the Brocchieri water does not arrest hemorrhage from an incised wound sooner than the unaided powers of nature would accomplish the same result.

4th. From Expers. IV. and V., we conclude that in incised arteries, the application of the Brocchieri water is no more to be depended upon to arrest the hemorrhage, than that of simple cold water. In both of the above experiments, (IV. and V.), the artery was severed through more than one-third of its circumference, and the bleeding was profuse, but in both the bleeding was arrested at the end of twenty minutes. In the first, the hemorrhage returned, and the dog died three hours after the operation; in the second, the animal lived in good condition for twenty-four hours, and, in all probability, would have ultimately survived. The only difference in the two cases was, that in the first, the par vagum nerve was cut; but we do not think that this could have had any effect in producing a return of the hemorrhage.

The true and the only cause of the arrest of the hemorrhage in these cases, as in all of the cases which have been reported is, in the opinion of the committee, *pressure*, the pressure being continued for a sufficient length of time to allow a coagulum to form, which will be firm enough to resist the impulse of the blood from the orifice in the vessel.

In connection with this subject, it will be interesting to examine the experiments made by Cæsar Hawkins on the celebrated styptic of Talrich and Halma-Grand, from which he arrives at the same conclusion that, in all the reported cases of cure by this remedy, the efficient agent was pressure. (Vide *London Medical Gazette*, vol. ix. p. 673. Feb. 4, 1832.

Carter P. Johnson, M. D.
G. G. Minor, M. D. } *Committee.*
R. W. Haxall, M. D.

As to the first two experiments.

REVIEW.

ART. XIV.—*Scrofula; its Nature, its Causes, its Prevalence, and the Principles of Treatment.* By BENJAMIN PHILLIPS, F.R.S., Assistant Surgeon to the Westminster Hospital. Illustrated with an engraved plate. London, 1846, 8vo. pp. 379.

THIS work comprises a larger amount of novel and cautiously investigated facts in relation to the etiology of scrofula than any that have yet appeared. In his examination of the causes and prevalence of the disease, the author has evidently expended a large amount of time and labour, the fruits of which have been rendered still more valuable from the commendable caution he has evinced in distinguishing between facts and suppositions, actual observations and the results of loose conjectures or popular misconceptions. The conclusions to which Mr. Phillips has been led are adverse to many of the generally received opinions in reference to the diseased condition of which he treats, and even should all his inferences not be confirmed by future more extended observations, still his work must be received as one of the most valuable contributions to pathology with which the profession has for a long period been presented.

Some idea of the labour which the author has bestowed upon his subject,—the extensive limits to which his inquiries have extended—and the caution with which his investigations have been prosecuted, may be derived from the following extract from his introductory chapter.

"My position at the St. Marylebone infirmary was singularly favourable for the observation of scrofulous affections when fully developed; but the field was too limited for the study of their causes. It, therefore, became expedient so to enlarge my sphere of observation, and so to extend my inquiries, as to comprise the influence of the many causes, which, it is alleged, are capable of producing the disease.

"To ascertain how far and how constantly scrofula prevailed in the metropolitan districts, I visited a large number of the national schools, the parochial establishments, and the charitable institutions which are found in every part of the metropolis. I was thus enabled to determine whether the healthier and wealthier localities of St. George's, Hanover Square, St. Marylebone, and Kensington were more lightly visited by the disease than the comparatively poor and unhealthy districts of Shoreditch, Bethnal Green, St. Giles, and the lower part of Westminster. Having ascertained, as far as was practicable, the condition of the population of the metropolitan districts, where the effects of close packing may be expected to be keenly felt, I pursued the inquiry through districts where the population was widely spread, and I was thus enabled to compare the condition of the people living under very different circumstances, and to ascertain the influence of crowding upon human life, in so far as concerns scrofula. I extended the investigation to the mining and factory districts, with a view to determine how far particular occupations tended to develop the disease. I caused children to be examined in the north and the south, the east and the west of our own country, so as to be able to estimate the influence of particular localities in our own island to determine the affection; and I extended my researches throughout Ireland and Scotland, so as to be enabled to estimate the influence of particular articles of food,—and the correctness of the evidence so obtained has been, to a certain extent, tested by the condition of recruits, and of persons committed to prisons; by the mortuary tables of the Registrar-General, so ably analyzed and arranged by Mr. Farr:

by those of the Irish census, so well digested by Mr. Wilde—in so far as they could be made available in an inquiry like the present—and by a large number of hospital and dispensary returns.

"Having obtained a fair estimate of the condition of the people of this island, with reference to scrofula,—having ascertained their condition in factory and other towns, and in rural districts,—inland and on the sea coast,—whether living on bad food or better,—entirely vegetable, as in Ireland, or more animalized, as in portions of England,—in union houses, or among the independent population,—I came to certain conclusions as to the causes of the great difference which was found to exist between one district and another. But I soon found, that important as the inquiry must prove, even when bounded by our own shores, its value would be increased if its limits were enlarged. It was by such an extension alone that I could test the influence of varying climates and habits, and ascertain whether the cold of Russia called the disease into existence more frequently than the heat of the countries bordering upon or lying within the torrid zone; whether the humidity of Holland be more prejudicial than the comparatively dry atmosphere of Spain and Portugal: the marine atmosphere of our own land, than the inland atmosphere of central Europe.

"Through the kindness of Lord Aberdeen I have obtained most valuable reports from Russia, Austria, Prussia, Bavaria, Portugal, and Holland. I have acquired important information from the northernmost portions of Europe, as well as from France and Belgium; and in Bavaria, Belgium, France, Tyrol, and Switzerland, I have been enabled myself to verify the accuracy of the information with which I had been furnished. I have also obtained returns of the condition of children in so much of the United States of America as is found on its eastern shores between Boston and New Orleans; from a certain portion of the Bengal Presidency; from some districts in China; and from portions of Egypt, Syria, and Greece, abutting on the Mediterranean sea, and from Madeira. The accuracy of the information to which I have referred, inasmuch as concerns the influence of climate, has been, as far as possible, tested by the admirable reports of Colonel Tulloch, which so well show the influence of climate to induce particular forms of disease in the British soldier.

"Besides all these sources of information, I have consulted, so far as I knew them, all the written works which bore on the subject, and I have adopted any views which they contain after satisfying myself that they were correct."

We considered it necessary to present the foregoing long extract in order to indicate the amount and kind of information from which the deductions of the author have been drawn, as the value of the latter can alone be tested by the extent and accuracy of the data upon which they are based.

Valuable as we esteem the work of Mr. Phillips, it will unquestionably disappoint many of those who consult it, from the fact that the subject of scrofula is only considered in a general view,—the various structural diseases which may occur in a constitution contaminated by scrofula, being left out of the present inquiry. In fact the author has almost exclusively confined himself to a few only of the manifestations of scrofula,—namely, to intumescence, inflammation, suppuration, or ulceration of the glands of the neck, and the peculiar scar or sinuses consequent upon scrofulous disease of these parts; and to the scrofulous affections of the joints and bones: and we fear that some of the data upon which his leading conclusions are based have been rendered imperfect by this very limitation of the signs adopted by the author as indications of the scrofulous condition of the human frame. If we should define scrofula as that particular morbid condition of the animal system which predisposes to the deposition of a particular abnormal substance into one or other of the tissues, and this we conceive the most accurate definition,—can we arrive at any legitimate conclusions as to the general causes and prevalence of scrofula unless we take into account all the cases in which such a deposition takes place,—

whether it be in the lungs, cervical or bronchial glands, brain, bones, or other organs.

"That condition of the economy which is favourable to the formation of scrofulous, is not, however," according to Mr. P., "scrofula, but only a diathesis, or disposition; it may exist long, it may cause the tumefaction of many glands, but, under favourable circumstances, it may disappear without the deposit of a single particle of that product, whose presence in the glandular structure is," he conceives, "necessary to constitute scrofula. Again," he remarks, "the condition of the system favourable to this deposit is marked by *no certain* external sign up to the moment when the glands became tumid. The child may be fair or dark, pallid or ruddy, well fed, clad, and lodged, or all these may be the worst possible,—he may be the child of wealth or poverty,—he may live in town or country,—he may be the child of old or young, of healthy or sickly parents,—he may be born and live within the tropics, or in the arctic circle; under all these circumstances, as we shall see hereafter, scrofula may be developed. What circumstances tend most to its production we shall endeavour to show when we come to the study of causes. At the same time," he adds, "we are bound to admit that the condition of the system which we have described as indicating the predisposition to scrofula, is one which favours the deposit of the particular product in many parts of the body; in one case in one organ, another in another. If, for experiment, two animals be submitted to the influence of exactly the same causes of evil, the results of that influence will probably be very different. In one instance a particular organ is the principal sufferer; in another, the same organ has escaped comparatively free from disease,—and it is often difficult to assign any explanation why these results should differ so widely from each other. But it is certain that most morbid deposits are the result of perverted nutrition—and where the condition is developed which is favourable to their production, particular circumstances will determine them upon one organ or another."

It is evident, therefore, that we cannot determine accurately the causes and prevalence of scrofula generally, by confining our inquiries to one, and that *probably* not the most common of the forms under which it manifests itself.

The first chapter treats of the term scrofula,—its signification and its derivation,—and comprises also a very interesting notice of the ideas with regard to the disease entertained by ancient authors. In the second chapter the author presents his own views of the nature of scrofula.

He conceives that it is a disease of the constitution, and that it is most clearly manifested by certain external signs, of which *swelling of the subcutaneous lymphatic ganglia is* the most conclusive. "When," he remarks, "one or several cervical glands became tumid, in the apparent absence of any obvious local irritation, this would constitute a strong ground for suspicion that the constitution was suffering under the taint of scrofula. It would not, however," he adds, "amount to more than suspicion, and the suspicion could scarcely receive absolute confirmation, unless we have the opportunity of observing the contents of the tumour itself. Unless the swelling of the gland be accompanied by the deposit of a product, hereafter to be described, known as *scrofulous matter*, the proof, in the author's judgment, of a scrofulous constitution is wanting."

It is mainly to the state of the cervical glands as an indication of scrofula that the inquiries of Mr. Phillips have been directed, as will be perceived by the following extract from his introduction.

"At an early period I became fully sensible of the necessity of introducing a more precise method of conducting the inquiry than any which had been previously adopted. To say that scrofula is extremely frequent in one place, and rarely seen in another, is to make a statement which has no absolute value, because, so far as I know, it has always been made without particular observa-

tion or accurate comparison, and yet it is upon such statements that theories are constructed.

"To determine, from an examination of a particular district, that a given agent is the cause of scrofula, because such agent is there found in connection with the disease, whilst in another district, from which such agent is absent, the disease prevails to nearly the same extent, is a mode of investigation which has been adopted by persons who have treated ex-professo of the disease, but cannot satisfy the wants of the present day. Early impressed with the fact that what was alleged as *the* cause by one author, was *proved* to be no cause by another, though the features of the disease might be equally well described by both, I determined to accept no statement of the causes, the prevalence, or the treatment of the disease, which was not the result of precise observation."

"I, therefore, thought best to adopt a definition which should include points upon which all seemed agreed about the lymphatic temperament, and to exclude those about which there was less accordance. The same course was taken in defining what was meant by ordinary marks of scrofula; I therefore requested to be informed how many presented fair hair and eyes, and fair, soft skin. I am quite aware that cases of what is called lymphatic temperament may not be included in such a definition, and that cases which would not be regarded as belonging to that category might be included in it. But this seemed the smaller evil of the two, and it has the merit of securing something like uniformity in the results. There can be no question that what is called by many persons the lymphatic temperament, is a constitution upon which scrofula has impressed its seal. In a tenfold degree was the necessity urgent for defining what I meant by ordinary marks of scrofula, because some persons regarded diseases of the scalp, as well as those of other portions of the cutaneous envelop, as evidence of scrofula. I therefore defined ordinary marks of scrofula to mean enlarged glands, discoverable by the touch, or the sight, sinuses or ulcerations resulting from them, and ordinary scrofulous bones or joints."

"It is true that the returns received may include some cases in which the enlarged glands may have been owing to some local irritation, but this is as likely to occur in one district as another,—and therefore, the value of the return will not be invalidated by such an accident. It is also true, that passing enlargement of the lymphatic glands is not always regarded as scrofulous, even in the absence of local irritation; but I am satisfied that the state of the constitution which favours the development of such glandular swellings is one which, if sufficiently long continued, would commonly end in unequivocal manifestations of scrofula,—and, therefore, I have desired to include in my returns all cases in which sensible enlargements existed. Happily the constitution of the sufferer does commonly change; and of twenty persons suffering from sensibly enlarged glands, in scarcely more than one will they proceed to suppuration. In those cases, therefore, or at least in an overwhelming majority of them, no scrofulous matter is deposited in the glands; but as the state of enlargement is only a previous stage in the development of scrofula, and as it is impossible, from a surface examination, to say whether the deposit has actually taken place or not, it seemed to me best and safest to draw the line where I have done it. And at all events it does not make out a less than actual prevalence."

Having thus placed before our readers the exact class of cases to which the investigations of Mr. Phillips refer, and the general plan according to which that investigation has been conducted, we shall proceed to take a hasty survey of the facts he has collected, and the conclusions he has drawn from them.

The author restricts the term scrofulous, and we conceive with great propriety, to those affections in which there takes place a deposit of scrofulous matter. The diseases regarded as scrofulous, in which no such deposit occurs, he considers, not to be scrofulous at all, but simply the result of such low inflammatory action as is often set up in a debilitated state of the constitution.

He knows of no certain sign by which the state of the constitution

which precedes the deposit of scrofulous matter can be recognized. He is satisfied, from the result of personal observation, that there is the utmost variety in the external characters of those who present undoubted scrofulous taint. The hair and complexion may be either light or dark—the cheeks rosy or pale,—the alæ nasi expanded, and the upper lip tumid or the very reverse. There is usually, but not always, a want of muscular development—often there is an appearance of plumpness resulting from the hypertrophied or infiltrated condition of the cellular tissue, which rapidly disappears under fatigue, privation, or disease.

"Commonly, there is a general paleness and coldness of the surface of the body, which is owing to a feeble circulating apparatus; but in a large number of cases, about one-fifth of the whole, that paleness does not extend to the face." "There is not, as some persons have supposed, anything constant in the shape of the lower jaw, or in the appearance of the teeth. The abdomen is commonly tumid. The whole of the mucous surfaces are especially liable to derangement; discharges from the nose, the eye, and the ear, are common. The digestive mucous membrane affords early indications of suffering; the tongue has commonly a dirty whitish coating, the tonsils are usually enlarged, and they are often so tumid as to impress a disagreeable and frequently husky character upon the voice, and to cause snoring when the patient is asleep. A still more deleterious influence is exercised by these tumid bodies; they lessen so much the channel for the passage of the air, in respiration, that the sufficient development of the chest may be interfered with. The stomach and bowels are frequently disordered, and digestion is ill performed,—acrid eructations are common, flatulence is often very troublesome, and the action of the bowels is very irregular, sometimes relaxed, at others constipated,—sometimes the evacuations are clay-coloured, very offensive, and of varying consistency; at others, having a redundancy of bile. Similar evidences of derangement are observed in the air passages, commencing at the nose—which exhibits increased secretions upon the occurrence of very slight variations in temperature—and passing through their whole length. Similar phenomena are observed in the mucous tissue of the genito-urinary system; the bladder often shows an impatience of the presence of the urine, and the desire to void it is often frequent. The skin, though often dry and hard, is sometimes the seat of a considerable greasy exhalation,—sometimes it is found to be fetid and sour. The acidity of the exhalation may be so decided as to determine a reaction upon litmus paper. The scalp and other parts of the cutaneous integuments are often the seat of eruptive affections. The absence of vascular and muscular energy often causes the child to lie and sit about much, and indisposes him to enter into the energetic games of his playfellows. As to the intellectual development claimed for scrofulous persons, I am bound to say, that it is usually wanting. That many scrofulous children present that character is quite true; but the result of very careful observation has convinced me, that the overwhelming majority are without those superior intellectual qualities which have been pointed out as their ordinary character."

In a constitution *favourable* for the deposit of scrofulous matter, Mr. P. believes, that in the absence of tumefaction of the subcutaneous ganglia, there are no features so constant and so conclusive as to justify a reliance upon them, in pronouncing an opinion whether a constitution be scrofulous or not. We may even have enlarged glands, while no scrofulous matter is deposited; although, in the absence of irritation, he conceives, that enlarged subcutaneous glands constitute grounds for grave suspicion that the constitution is scrofulous. Nevertheless, the deterioration of the system proceeds so slowly, that although the tendency be directly onwards from the period when the gland is simply enlarged, to that when the deposit would ordinarily occur—in that interval, favourable or unfavourable circumstances may be experienced, and no deposit may take place. On the other hand, the constitution may improve, and the glandular swelling may subside,—

on the other, the ailing child's life may be cut short by other diseases before the proof of scrofula is complete.

"In childhood, the time necessary for the perfect development of the disease is, Mr. P. believes, very long; so long as to build up the whole body with bad materials. In adult life, the time is still more considerable; so that although in each case the causes of the disease may be efficient, their influence may not be continued long enough to bring about such a change in the constitution as fits it for the development of scrofula; and if they be not so continued, the swelled glands may subside, and the person may escape the deposits, or the causes of ill-health becoming more intense, he may die of some more acute disease."

The third chapter treats of the physical characters of the scrofulous deposit. As Mr. P. defines scrofula to be a disease, manifested by a peculiar deposit in the subcutaneous lymphatic glands, it is to the deposit as it occurs in the latter, his examination is confined.

According to our author, a gland about to become the seat of such deposit undergoes a change in structure, dependent on increased action alone. The matter may be deposited at several points of the gland—these points enlarging, may ultimately coalesce, and the intermediate tissue of the gland disappears.

It sometimes, but very unfrequently, happens that the matter deposited in the lymphatic ganglia, presents at an early period, an appearance not unlike that of the gray, translucent, tubercle-like matter found in the lungs. Most commonly in lymphatic ganglia, there occurs no intermediate stage between the simple enlargement, induration and increased vascularity, and the occurrence of the deposit of opaque scrofulous matter; which, to the naked eye, appears as an amorphous, grayish, buffish or yellowish mass, irregularly granular, and not unlike moist old cheese.

Mr. P. presents the microscopical characters of scrofulous matter as described by Albers, Bredow and Ruette, and also the results of the microscopical examinations of MM. Dalrymple and Gulliver, undertaken expressly at his request. According to Mr. Dalrymple,

"The whole material is composed of disintegrated tissue, granular molecules, irregular exudation corpuscles, and in which the nucleolus is seldom to be recognized, and a considerable quantity of oil globules, which may be extracted by boiling æther, and recovered by evaporation on a plate of glass."

"In the human subject," remarks Mr. Gulliver, "it appears to me that crude tubercular matter, from whatever organ obtained, differs as little in its microscopical as in its general and chemical characters. When examined by the aid of the microscope, crude tubercular matter can scarcely be said to present any regular structures, as it is merely made up of minutely granular matter, oily spherules, some shapeless albuminous flakes, or shreds, and a few irregular corpuscles,—the latter are probably nothing but effete, or shrunken primary cells."

In the ensuing chapter (4th) is examined the state of the gland in which the product is about to be deposited. After noticing the fact, that commonly, if not always, granular structures, previously to scrofulous matter being deposited in them, acquire a considerable increase in volume, in density, and in vascularity, Mr. P. remarks that a point of considerable interest is here presented, whether, namely, the state of the gland is the result of the changed condition of the blood circulating within it, or is independent of the blood—whether the blood fits the organ to receive the deposit, or the organ fits itself.

"If the action depends only upon a general contamination of the blood, how comes it that all the lymphatic glands are not equally affected? It is notorious that they are not. The bronchial glands are affected more than twice as often as those

of the mesentery, the latter four times as often as those of the neck, though in many respects less exposed, and the last named glands four times as often as those of the axilla and the groin. There must be a reason for this. It may be that the cause of the greater frequency in the glands of the mesentery, is the irritation set up in them by depraved chyle, the result of bad food or improper feeding; which state may be kept up until the blood is sufficiently charged with improper materials to occasion a deposit to be made; and I apprehend the cause of the greater frequency of the deposit in the cervical than in the inguinal or axillary glands is, that they are more exposed to alternations of temperature and to irritation; that, therefore, cæteris paribus, under the same amount of constitutional irritation, congestion is more rapidly developed in them, and therefore, the deposit is more frequently found in their substance."

Mr. Dalrymple, after a careful examination of a scrofulous cervical gland, says,—

"The enlarged gland appears to consist of a general parenchyma in a state of chronic inflammation, surrounding irregular masses of a yellowish-white matter, more immediately the subject of examination. In direct proximity to the edges of this white material, the blood-vessels are seen to be more enlarged and congested than elsewhere, and in some parts, the capillaries are occluded with coagulated blood. The parenchyma, which at first sight appears healthy, is, on examination with high powers, found to be infiltrated with exudation corpuscles, resembling lymph globules. The natural texture of the gland consists of its proper corpuscles, filamentous tissue, blood-vessels, lymphatics and nerves. In this morbid specimen, everywhere is the filamentous tissue infiltrated, and its fibres separated by innumerable exudation corpuscles, and the proper corpuscles of the gland are similarly surrounded and imbedded. As the parenchyma is nearer to the white matter, so proportionably do the proper corpuscles of the gland become more indistinct, the filamentous tissue more obscure, the blood-vessels irregularly dilated, and filled with red-globules, and they at last disapper insensibly. The exudation corpuscles are more numerous, but irregular in size and shape, and interspersed with minutely granular matter."

That the state of hypertrophy, with increased vascularity, is inflammatory in its nature, the author conceives must be admitted, inasmuch as exudation corpuscles can be detected before any scrofulous matter is deposited.

This state of the subcutaneous glands, according to Mr. P., can be detected in one-fifth to one-sixth of the juvenile population of Great Britian. In probably nine cases out of ten, the intumescence of the gland, thus produced, completely subsides, so as to leave no trace of its existence behind it. Thus, while enlarged glands are perceptible in more than twenty per cent. of the juvenile population in England and Wales, they are not found to proceed to suppuration in more than two per cent. of that population. And this subsidence, Mr. P. assumes, as a proof that no scrofulous matter was deposited, because he has no reason to think that when scrofulous matter is deposited in any structure, it can be removed by any process of absorption; hence, when the deposit has once taken place, the swelling it occasions must remain until the matter is ejected.

In chapter five is examined the source from whence scrofulous matter is derived. The author first inquires, whether there is any foundation for the notion that scrofulous tumours are ever produced by thickened lymph. After a careful investigation of all the facts bearing upon this question, he comes to the conclusion that, although there is nothing in the character of the deposit in the mesenteric or subcutaneous glands, to make it impossible that such deposit may result from the chyle or lymph passing through them, as was maintained by the older writers, that glandular tumours are but very rarely formed in this way.

It being admitted now that morbid products are derived from the blood;

the author examines next the following questions.—Has the blood previously undergone a change in its elements, the part in which the deposit is made remaining unchanged? Or, does the blood remain in a healthy condition, the part in which the deposit is made exercising a specific influence upon the blood, and determining the character of that deposit? Or, are both removed from a healthy condition before the product is deposited?

Mr. P. has examined the blood in sixty-seven instances of scrofula, and although he has almost always observed a considerable deviation from the condition of healthy blood, the changes have not presented sufficient uniformity to induce him to regard any particular condition as specially characteristic of scrofula; the changes being such as seem to belong to a tolerably extensive group of affections, all, it is true, being connected with disordered nutrition and debility. He admits, therefore, that he is unable to point out any particular state of the blood which is certainly characteristic of scrofula. Whenever the marks of scrofula are evident, he has found the altered condition of the blood to be also evident, still he has been unable to indicate any special change in the blood which clearly marks the existence of scrofula.

"Whether," he remarks, "that change in the condition of the blood which is demonstrable when the existence of scrofula is evident, and which can also be demonstrated when the existence of the disease in the constitution may be presumed, though the local manifestation is wanting, does really stand to scrofula in the relation of cause, I cannot, as I have already said, conclusively prove, though I believe that it does. And although the evidence in support of that conclusion be strong, I admit my inability to afford a demonstration of the correctness of the opinion I entertain, that the scrofulous matter is derived directly from the blood. Supposing that opinion to be warranted, it may be asked, whether the materials from which the scrofulous product results, have gone far towards elaboration before they leave the blood-vessels, or whether any elaboration be afterwards effected. This is a question upon which we can only speculate; but it is certainly difficult to understand how the necessary abnormal action, that causes the deposit, can be developed in so many regions of the body, and often in so many different tissues, almost at the same moment of time, as we find in tuberculous diseases, unless something more than a local action was at work to determine the deposit.

"But having come to this point, we must now stop. We cannot prove whether the process under which the deposit occurs be one of secretion or excretion—whether it occurs in virtue of some peculiar action developed in the part, and causing a new combination between the constituents of healthy blood—or whether it is owing to the blood having undergone the change before it has ceased to circulate, becoming overcharged with albumen and salts, and ready, when the ordinary excreting organs do not carry them off, to deposit them anywhere, and wholly independent of local action. However, so much may, I think, be fairly assumed, that the blood is changed before the deposit is made, that the accumulation of certain morbid materials in the blood constitutes what is known as the scrofulous diathesis or constitution, and that their deposition in the subcutaneous lymphatic glands constitutes what we know as scrofula."

The question which Mr. P. next examines is the following:—Are pulmonary tubercle, or phthisis and scrofula, in their nature identical? Or more properly, are tubercular disease of the lung, and scrofulous disease of the subcutaneous glands, identical in all other respects than in the seat of the deposit? With a view to the solution of this question, the author directs his attention first, to the characters of the product deposited in these two affections, and the condition of the part in which the deposit is made; he then proceeds to ascertain whether the circumstances under which the deposit is made are identical; whether it occurs at the same period of life, and whether it falls with equal severity on both sexes; whether, where

one of these affections is largely prevalent, the other keeps pace with it; and whether those who die of phthisis bear in their bodies the marks of scrofula; because, he remarks, if in most of these respects a kind of antagonism between these affections can be demonstrated, a conviction must then be induced, that how strong soever may be the resemblance in the general characters of those diseases, the points of difference are certainly not unimportant. And even if we should come to the conclusion, that in their nature these affections are identical, he conceives that it might still be imprudent to lose sight of scrofula, as a term well known, to indicate a particular form of tubercular disease.

Mr. P. admits that he is unable to point out any well-marked distinction between the tubercular matter deposited in the lungs in cases of phthisis, and the morbid deposit in scrofulous glands, besides that which is dependent upon the difference of structure of the organ. Notwithstanding Albers and Sandras have described certain differences between the two, yet, Mr. Gulliver, who has examined a large number of specimens, in which deposits existed in the lungs, the liver, the kidney, the spleen, the internal and external lymphatic ganglia, has discovered no such differences. He says,

"In the human subject, it appears to me, that crude tubercular matter, from whatever organ obtained, differs as little in its microscopical as in its general and chemical characters. Other observers have come to similar conclusions. Mr. Dalrymple thinks that oily globules are more predominant in scrofulous than in tuberculous matter, but with that exception, he knows no difference in the microscopical character of the two products. In so far, then," remarks Mr. P., "as concerns the physical and chemical qualities of scrofulous and tuberculous matter, we can, at present, draw no distinct line of difference between these products."

In regard to the difference in the condition of the part in which the deposit is made, Mr. P. is satisfied that the lymphatic glands, before they receive the scrofulous deposit, undergo considerable change—they become enlarged, their vascularity is much increased, and their consistence becomes almost flesh-like—this change he conceives to be the result of inflammation. Now, although the presence of inflammation was thought by the older authors to be necessary for the development of all accidental productions—an idea which was supported by Broussais—few of the more accurate observers of the present day are inclined to doubt that tuberculous matter is usually deposited in the lung unaccompanied by any sign of inflammation or even active hyperæmia. Mr. P. assumes that we have clearly no right to assume the existence of antecedent inflammation, when we find the pulmonary tissue around a tubercle apparently quite healthy. He does not advocate the opinion, that tubercles may not be developed as a consequence of inflammation, when a predisposition exists, or that a period does not arise in the progress of tubercular development, when a certain amount of irritation or inflammation may be set up in the surrounding tissue—but only, that alone, and in the absence of all other causes, inflammatory action does not seem capable of generating tuberculous matter, and that there is no proof that inflammatory action in the lung usually precedes the deposit of such matter.

"If," he remarks, "the correctness of these views be admitted, it is evident that, in the necessity of a change in the organ in which the deposit is made, in the one case, and in the absence of any similar change, in the other, we have established one important difference between tubercular phthisis and scrofula."

Another supposed difference between the scrofulous matter of the lym-

phatic glands and tubercles is, that the first is vascular, or at least permeable to injection, while the latter are incapable of being injected. The author, however, has been unable to inject either tuberculous matter in the lungs, or scrofulous matter in a gland. But, he remarks—

"The appearance of the part, upon a simple inspection, may now and then lead to the belief that the injection has succeeded. In a scrofulous gland, the matter may be deposited at several points, and ultimately these points may come so nearly in contact, as to impress a casual observer with an idea, that the glandular structure had been destroyed, or converted into scrofulous matter; and with that impression, if the injection passed into the gland, it might be assumed that scrofulous matter underwent organization—was vascular. But in every case in which I have witnessed this apparent vascularity, I have entirely satisfied myself that the vessels were those of the organ, and not of the morbid product. In the lung, matters appear to me to be in a similar condition. Supposing a portion of lung to be infiltrated, as it were, with tuberculous matter, instead of having it deposited in nodules, injected matter would then seem to pervade the tuberculous matter, because the proper vessels of the organs are intact, and because the fluid has passed through them. But if the tubercle be a nodule developed in an air cell, the tissue of the organ being pushed aside by it, no injection can be passed into the tubercle. The difference, in this respect, would depend upon whether the tubercle were developed on the mucous surface of the air vesicle, or in the cellular tissue of the organ. Injection, then, does not establish any distinctive character between the matter of scrofula, and that of tubercle."

Mr. P. next considers the difference as to the period when scrofula and phthisis destroy life. He has shown that in the British metropolis, from the reports of 1840—in the twenty-four districts of England and Wales, selected by the registrar-general, in Birmingham, Liverpool and Manchester, and in Ireland during ten years ending 1841,—the majority of the deaths from consumption occurred in individuals over fifteen years, while a majority of the deaths from scrofula occurred in individuals under that age, as will be seen by the following statement.

Metropolis, total deaths from consumption			21,667,	of which	21	per cent.	were under 15.
24 Districts,	"	"	8,550,	"	29	"	"
Birmingham, Liverpool, Manchester,	"	"	3,188,	"	39	"	"
Ireland,	"	"	135,590,	"	7·9	"	"
Metropolis, total deaths from scrofula			347,	of which	60	per cent.	were under 15.
24 Districts,	"	"	106,	"	63	"	"
Birmingham, Liverpool, Manchester,	"	"	23,	"	69	"	"
Ireland,	"	"	3,149,	"	43	"	"

"The researches made by order of the Count Chabrol, show that in Paris the greatest number of deaths from consumption happen between 20 and 30; then comes the period between 30 and 40; then 40 and 50; then 50 and 60; then 0 to 10.

"It will be seen that the proportion of deaths from both consumption and scrofula in Ireland, is under that of England and Wales. In the Irish returns, however, a very large number of deaths under 15 are ascribed to marasmus, 68,650 being more than half the total deaths from consumption. Some of these cases were no doubt consumption, some scrofula, and some tabes mesenterica.

"The proof, then," says Mr. P., "seems to me ample, that the period of life when the deaths from phthisis are most numerous is not that when the ravages of scrofula are most keenly felt, and this constitutes another distinction between these diseases. I know that it is said that the registered deaths from scrofula are no proof of the extent to which it prevails, but such reasoning would also apply to phthisis. Complete evidence they may not furnish,—but as approximative evidence they are unexceptionable."

The statements adduced by the author show unquestionably the comparative number of deaths caused by consumption and scrofula in individuals under 15 years of age; they afford no evidence, however, of the comparative frequency with which tuberculous matter is deposited in the lungs before and after the age of 15. Tubercles of the lungs are met with in a very large number of children whose death has resulted from other diseases.

Mr. P. conceives that if there be, as is maintained, identity between scrofula and phthisis, they should surely fall with equal severity upon both sexes, and yet, as he has shown from official reports, that in England, Wales, and Ireland, phthisis carries to the grave an excess of females, while scrofula is more exclusively fatal to the male population. This argument does not strike us as very forcible,—inflammatory and other diseases, the pathological identity of which is very generally acknowledged, it is well known affect particular organs more frequently in the one sex than the other, at one period of life than another, and in certain climates or localities than in others,—may not the same be true of scrofulous disease also?

Mr. P. believes that, if the circumstances under which the two affections, scrofula and consumption, are developed, be similar, then where the tuberculous disease of the lung is frequent, scrofulous disease should also be frequent, whereas he shows from the registrar-general's tables for England and Wales,—taking district by district, and comparing town population with that of the country,—from the army returns for India,—from the statements of Sirs A. Crichton and George Lefevre,—from the report of M. Jolly to the French government,—the observations of MM. Rufz, Lombard, Papavoine, Cless of Stuttgard, Lewis, and finally, from his own personal observations, that wherever there is a large mortality from consumption, there is a small mortality from scrofula, and *vice versa*, and that, secondly, in the cases of those who die of tubercular phthisis, numerous as they are, the proportion those who exhibit any marks of having suffered from scrofula bear to the total deaths from phthisis, is very small.

"Such results," the author remarks, "must certainly leave doubts on the mind as to the identity of those conditions of the system which determine phthisis and scrofula. We see in those cases where the tuberculization of the system is most complete, that not only is the lung studded with those deposits, but that in six-sevenths of the cases the other thoracic and abdominal organs present them, while in not more than one-twelfth of the cases, and in my own experience the proportion is very much smaller, could a similar condition be detected in the subcutaneous lymphatic ganglia. Surely if scrofula be so rife, and if phthisis be the culminating point, the maximum of development of scrofula,—if, in other words, the reason why the apparent mortality from scrofula is comparatively so small be, that he who suffers from scrofula dies from phthisis, surely the phthisical patient should, more frequently than is found to be the case, carry with him to the grave scars or scrofulous glands,—the marks of having suffered from the former disease."

Mr. P. examines next the differences deduced from comparative pathology. Upon this point his facts are scanty. His general conclusion is, that whatever tendency some of the lower animals in the domesticated state have to become phthisical, they do not become scrofulous. By the facts he has thus adduced in relation to scrofula and consumption, he apprehends that it has been very clearly shown, that

"With the exception of the deposit itself, which, whether found in the lungs, or in a cervical gland, whether examined by the naked eye, by the microscope, or by chemical analysis, is very similar, the circumstances attendant upon the

development of scrofula and phthisis are widely different. In scrofula the gland undergoes considerable change, inflammatory in its nature, before the matter is deposited in it; in the lung we commonly find the tissue around a recent simple tubercular deposit unchanged by inflammation. We find, further, that in districts where the causes of phthisis act with most intensity, those of scrofula fall lightest, that the age when the ravages of scrofula are most keenly felt is precisely that when the visitation of phthisis is least to be apprehended; that the sex which suffers most severely from one of those diseases is least affected by the other. And beyond all this, there is the fact, that among the numerous victims of phthisis, at least 18 out of every 20 exhibit no marks of having suffered from scrofula. It seems to me, therefore, that these facts constitute so clearly marked a difference between the two affections that it will be most convenient, most conducive to scientific correctness to consider them as affections possessing a certain similarity of character, but no identity. It may be that they belong to the same family; so do pleurisy and pneumonia,—but every one deems it desirable to make as clear a demarkation as possible between those diseases. I say the same of tubercular disease generally and scrofula, between which the points of resemblance are strong in so far as concerns the deposit, but in all else they are weak."

The next point to which the author directs his attention is to determine the prevalence of scrofula in Great Britain. The inquiry has been conducted evidently with great industry and ability, and with the utmost caution. Mr. P. has examined himself, or by the aid of others, a large number of children and adults in schools, union houses, factories, and elsewhere; he has availed himself of a large number of hospital and dispensary returns; he has procured from the Army Medical Board returns of the prevalence of marks of scrofula among recruits; and like returns respecting the inmates of prisons; and he has taken the reports of the registrar-general as evidence of the destructive effects of the disease.

Though derived from so many and such different sources, there is a striking concurrence in the results of the evidence thus collected, which agreement constitutes, in Mr. P.'s estimation, a strong reason for believing that his data do very nearly represent the actual prevalence of the disease.

"We see that the returns of cases of scrofula found among our ordinary population, are singularly confirmed, not only by the returns of hospitals and dispensaries, but also by the examination of recruits and convicts, and I think we are thus justified in regarding as near the truth our estimate of the prevalence of scrofula, such as we have defined the disease. That is to say, that scars are apparent in about 1½ per cent.; that the subcutaneous glands are enlarged so as to be perceptible on simple inspection in less than 3 per cent.; and that the glands may be detected by the finger in 24½ per cent. of those of the children of the poor who are under 16, and in 8 per cent. of those above,—or taking the whole population, in 10 per cent.; and that something less than 3 per cent. of the people are under treatment for the disease in its various forms."

The above presents a result very different from what we have been led to suspect by English medical writers.

"The registered mortality from scrofula contained in the report of the registrar-general, amounts to 8 per 100,000 on the gross population of England and Wales; that is to say, the average annual deaths from scrofula are about 1200, and the population, in round numbers, about 16,000,000."

Scrofula has been found to prevail very unequally in different districts, in some extending to 72 per cent., in others not exceeding 11 per cent. In some parts of England the proportion is under 1 per cent. In the eastern agricultural districts the deaths from scrofula amount to 11.8 per cent, while in the south-western they are as 10 to every 100,000 population, being a difference of nearly 20 per cent. In the purely manufacturing

districts of Lancashire and Cheshire the proportion is only as 5·6, while in Yorkshire it is as 3·5 per 100,000. The recruiting returns for the United Kingdom show an average rejection of 8 per 1000 for marks of scrofula. In England the smallest number of rejections for scrofula occurred in London, namely 5 per 1000; in Scotland, in the Edinburgh district, 16 per 1000; in Ireland, in the Dublin district, 13 per 1000.

A series of facts are presented to exhibit the prevalence of scrofula in other countries than England,—we can spare room only for the following general statements.

Orphan Asylum, Lisbon.—Dr. Rosas—800 children examined—35 per cent. bore the ordinary marks of scrofula,—of the boys 50 per cent., of the girls 10 per cent.

Orphan Asylum, Amsterdam.—495 examined—42 per cent. bore marks of scrofula.

Imperial Royal Orphan Asylum, Vienna.—308 boys, 104 girls = 412 examined, of whom 18 boys, 27 girls = 45, or 11 per cent. came under treatment for scrofula.

Frederick Orphan Asylum, Berlin.—230 boys, 123 girls = 353—of whom 129 boys, 56 girls = 135, or 53 per cent., were scrofulous.

St. Petersburg.—840 children examined, of whom 41 per cent. bore evident marks of scrofula.

Imperial Foundling Hospital, Morocco.—15,515 examined, of whom 9 per cent. were affected with scrofula.

Boston House of Industry.—98 boys, 48 girls = 146 examined, of whom 70 per cent. bore the specified marks of scrofula.

Philadelphia Public Schools.—2641 boys, 1357 girls = 3,998—examined by Dr. S. Jackson—of whom 10 boys, 3 girls = 13 are returned as scrofulous.

New York, whole number of deaths from scrofula, at the average of 35 years, was 4278, or 1 to every 1241 of the population.

Philadelphia, the proportion is 1 to 453,—in *London* 1 to 17,500.

Beyrout, Cairo, Alexandria and *Greece.*—607 examined, of whom 21 presented the ordinary marks of scrofula.

India.—100 creole children, born in India, were examined,—80 dark complexion, of whom a majority were subject to glandular disease; 18 flaxen hair and olive eyes, all affected with glandular tumours; 2 very fair, with gray eyes, both scrofulous. 75 of mixed parentage, examined by Dr. Spry, had all swelled cervical glands; 4 scrofulous ulcers; 136 of pure English parentage, of whom none were scrofulous; 504 native children, of whom 300 were scrofulous.

Children's Clinique at *Strasburg.*—Of 300 treated, 40 had scrofulous diseases.

Madeira.—405 children examined, 15 per cent. were affected with scrofula.

In *Paris* the deaths from scrofula amount to 1 in every 3,221 of the population; in *Geneva* to 1 in every 2790.

In *France* 2 per cent. of the rejections among the recruits were for scrofula.

The question which next comes under consideration is, whether the occurrence of scrofula is proportionably more frequent than formerly? in other words, is it on the increase in England? From the data presented by Mr. P., "which, though not strictly accurate, are the best we possess, and which, when used with caution, constitute a fair body of evidence on the point, the conclusion," he remarks, "seems a fair one, that scrofula is much less

prevalent in the present day than it was in the seventeenth and eighteenth centuries."

The several particulars in relation to scrofula which we have thus far noticed occupy the first eight chapters of Mr. Phillips' treatise. With the ninth chapter he commences the inquiry into the causes of scrofula; passing in review,—hereditary influence,—predisposition from parents,—contagion,—food,—atmospheric influences,—climate,—temperature, and occupation. Each of which alleged causes of the disease is examined thoroughly and carefully. The conclusions at which the author arrives are based upon a very extensive series of observations,—and his remarks throughout are of the greatest importance. The value of the statistical information, and the interesting character of the facts and observations on the causes of scrofula contained in these and the ensuing chapters, would prompt us to make frequent and extensive extracts from them,—which is, in fact, the only method by which we could present to our readers any fair idea of the extent and importance of the author's researches on the several points involved in the discussion, but the length to which we have already extended this review warns us of the necessity of condensing as much as possible our further remarks upon the work.

The interesting question of the hereditary character of scrofula is very fully and ably investigated. Mr. P. examined himself, or caused to be examined, in the metropolitan, factory, and in rural districts, 2023 families, each consisting of from 3 to 5 children, and living, as nearly as may be, under similar circumstances; the entire number of the children was 7,587; and of these 1738, or nearly 23 per cent. bore the marks of scrofula already indicated. In 506 instances, derived from many localities and under the most varied circumstances, both parents were apparently *untainted*, and their offspring amounted to 2021. Of these 421, or something less than 21 per cent. presented marks of scrofula. In 276 instances there was reason to think that both parents laboured under scrofulous taint, their offspring amounted to 1092; of these 271, or nearly 25 per cent., bore the ordinary marks of scrofula. In 589 instances the father carried about him marks of having suffered from scrofula, whilst the mother was free from them, their children amounted to 2107, those having marks of scrofula to 483, or nearly 23 per cent. In 652 instances the mother bore upon her person the marks of scrofula, whilst the father did not; their children amounted to 2367, and of these 563, or nearly 24 per cent. presented marks of scrofula.

"In glancing over these results," the author remarks, "it must be kept in mind that the offspring of the tainted, on the one hand, and of the untainted on the other, are not intended to represent their relative fecundity, for means were taken to collect only such families as were represented by not less than three, nor more than five children. It will be observed, that although an hereditary influence must be admitted to be present and is apparent in each class, yet at its maximum the influence does not appear to be quite 4 per cent. It would seem that the influence of a scrofulous mother upon the offspring is greater than that of a scrofulous father."

"This result," Dr. P. adds, "is in opposition to two parties, one maintaining that the disease is always hereditary, and never acquired; the other, that no diseases are hereditary, but that they are always the result of circumstances which came into action after birth."

It has been suggested that although the *disease* itself was not hereditary, yet a *predisposition* to it was acquired from parents. Mr. P., however, concludes that, in the present state of our knowledge, it is impossible to

say in what consists the predisposition to scrofula, or to indicate the characteristic changes which show the actual existence of the disease. The predisposition to scrofula conveys to his mind a condition of the economy which has no external, distinct, and constant signs; although he would by no means say that its existence is not real, or that direct observation may not hereafter make it known.

The question whether the existence of any other disease in the parent is capable of developing scrofula in the offspring is next cautiously and minutely examined. The result of the facts the author has collected is, that a feeble constitution is a favourable, though not a necessary or indispensable condition for the development of the tubercular cachexia; that a feeble constitution is more likely to be the offspring of diseased than of healthy parents, but that we are not in a condition to point out the causes in the parent which tend most to entail feebleness upon the child, nor what kind of disease or feebleness in the parent tends most to induce the development of scrofula in the child.

By many it is supposed that the premature or advanced age of the parents, or of either of them, may influence the development of scrofula in the child. Mr. P. presumes that children born of parents advanced in life, as well as those born of youthful parents, may present less of vigour than the offspring of persons in the prime of health and strength, but it is not proved that they usually become scrofulous. Children of old men are often, though not always, weakly, and he admits that a weakly child placed under unfavourable circumstances is more liable to suffer from scrofula than a strong one, but simply because he is weakly.

Frequent intermarriages have been supposed to favour the production of scrofula. Mr. P.'s impression is, that intermarriages among *healthy* persons tend to no such calamity; he is not prepared, however, to deny that other physical or mental influences may not result from such unions.

The author believes that there is no proof in support of the opinion that the disease may be acquired by suckling a scrofulous nurse, neither, he admits, is it easy to procure proof that it could not happen, since such proof could only be negative; "meanwhile," he adds, "as all our present evidence is negative, we are justified in saying that such communication is, in the present state of our knowledge, inadmissible."

He conceives that whatever plausibility there may be in the reasons urged for the communicability of scrofula by mediate or immediate contact, or by inoculation, we have no satisfactory proof of the reality of such transmission. But, although he sees no danger of propagating scrofula by the association, or even the sleeping in the same bed with a scrofulous child, he should always object to the cohabitating of a sickly child with one in good health.

After a short but interesting reference to the general mortality, with a view of determining the accuracy of a strong conviction entertained by him, that many of the causes which tend to destroy life, do, when acting with less energy, tend to develop scrofula, and that when they are intense enough to determine a large general mortality they leave a scanty harvest for the slower moving ravages of scrofula; the author proceeds next to inquire into the influence of food in the production of the latter disease. The facts adduced in illustration of this question are copious and interesting; they are arranged and compared with great care, but would scarcely admit of any very satisfactory condensation. We must content ourselves with presenting the general conclusion drawn from them by Mr. P., which is:

"That whether children are brought up in town or country, whether their accommodations as to space be ample or confined, whether born of healthy or unhealthy parents, the influence of food in the production of scrofula is most important, and that the extent to which it prevails has a very evident relation to the diet of the child."

"That those who live almost exclusively on vegetable food in this country are less robust and exhibit a greater tendency to scrofula than those who subsist on an admixture of animal and vegetable food, is, I think, true. Our own rural population, as well as that of Scotland and Ireland, bear out the assertion. But, although it has been shown that insufficient and improper food, however associated, may lay a foundation for that disease, we have, in truth, no conclusive proof that any particular article of food directly tends to the production of scrofula."

In regard to the influence of a contaminated atmosphere in the development of scrofula, the following is the result of the author's very extended researches.

"If we regard scrofula in the widest signification of the term, so as to include all diseases in which a tubercle-like deposit seems to determine the loss of life: namely, phthisis, scrofula, and tabes mesenterica. the result may be thus stated. The mortality from those diseases is larger in towns than in country districts; but it is not found that the densest portion of a town is that in which the mortality is the largest. Thus in the four districts in London in which the crowding is the greatest, the average deaths from these affections is under 0·46, whilst in four other districts, in which there is less crowding, the average deaths amount to 0·51, and in Bethnal Green they are under 0·40. If we now narrow the question to the influence of a residence in towns and bad air in developing scrofula alone, the result may be thus stated. In the four years' mortality included in the fifth report of the registrar-general, namely, from 1838 to 1841, in a district comprising towns having a population of 3,759,186, the deaths from scrofula, in those four years, amounted to 758; and in a district having a rural population of 3,440,501 souls, the deaths amounted to 1,333; or to state the question more simply, the proportion of deaths from scrofula to 1,000,000 living was, in the town districts, 50 per annum, and in the country districts 97. And if with scrofula, tabes mesenterica be included, the numbers would stand as 122 deaths in towns, to 160 deaths in the country. Again, let us observe the south-eastern, the south-midland, and the south-western districts; there the mortality from scrofula amounted to 1 in 12,000; whilst in the densely packed factory districts of Yorkshire, Lancashire, and Cheshire, the mortality from scrofula will be seen to be less than half the preceding mortality from the same cause, namely, about 1 in 25,000.

"And supposing we go one step further, and compare one portion of the metropolis with another, we find that the total deaths from scrofula in the metropolis, when compared with the population, are as 5·6 to 100,000 living; whilst in the most densely crowded districts of that same metropolis, comprising the east and west London, Union, Strand, Holborn, St. Giles, Whitechapel and Bethnal Green, the proportion is as 5·1 to 100,000,—Bethnal Green being represented by 4·8, and Whitechapel by 4·7 to 100,000 living. So in the low, dense and poor districts of Bethnal Green, Poplar, Stepney, Whitechapel, Shoreditch, Westminster, Bermondsey, Rotherhithe, Lambeth, with a total mortality amounting to 21,522, the deaths from scrofula are 45, or 1 in 478; while in the district embracing Kensington, St. George's, Hanover Square, and St. Marylebone, with a total mortality amounting to 14,734, the deaths from scrofula are 30, or 1 in 490. Thus the difference in these districts is scarcely appreciable; but if we compare the western districts of the metropolis with those of Bethnal Green, Shoreditch, and Whitechapel, we find that the proportion of deaths from scrofula to the general mortality, in the former, is as 1 to 490, and in the latter as 1 to 1000. Again, if from considering the influence of localities, we turn to the comparative mortality of the sexes, it will be found that 20 per cent. more boys died of scrofula than girls, and yet it must be admitted that girls are more exposed than boys to the effects, whatever they may be, of crowded rooms and exclusion from out-door employments."

The author considers next the influence of climate in the production of

scrofula. While he admits that there can be no doubt that the disease prevails more in one climate than another, he maintains that the fact of this being due to any particular quality of the atmosphere of that climate is unproved.

It is hardly possible to determine, Mr. P. remarks, whether the want of light alone would have any influence in developing scrofula, because want of light almost always implies the influence of much more important agencies of disease. In northern Europe the influence of darkness is experienced by the whole population, for considerable periods of the year, and if this were an efficient cause of scrofula the disease ought to be more than ordinarily prevalent in these countries; but this was not observed to be the case by the scientific commissioners of the Northern Expedition, sent out by the French government,—and in Iceland it would seem that the disease is less prevalent than in countries exempt from that influence.

In regard to the influence of a damp atmosphere in the production of scrofula, the statistical information collected by the author may be thus summed up:—

In England and Wales the proportion of deaths from scrofula to the population is as 1 to 13,400

In dry countries generally	"	"	"	1 to 10,500
In damp countries	"	"	"	1 to 10,300
In seaside towns	"	"	"	1 to 12,500
In inland towns	"	"	"	1 to 13,250

In London the deaths from scrofula along the banks of the Thames are to the total deaths as 1 to 365, and in situations remote from the river as 1 to 762.

"Supposing," Mr. P. remarks, "no other cause capable of developing scrofula to exist in the districts to which we have referred, and supposing the larger proportional mortality from the disease to be as constant in the more humid districts as in those to which we have alluded, the presumption arises that humidity exercises a small, though a certain influence in producing the disease. And whatever the evidence is worth, it tends to that result, though I by no means consider the data we possess on the subject conclusive. It has been usual to point to Holland and England as cold and damp countries, in which scrofula is more usually prevalent; and the prevalence being assumed, a cause was also assumed, and that cause was humidity. But, although we may admit that these countries are comparatively cold and damp, we deny the unusual prevalence of scrofula, at least in England, because it is now demonstrated, that in no European country do the people suffer less from scrofula than in England."

The facts collected by Mr. P. in relation to the influence of temperature, are particularly interesting; they show, so far as they go, that neither a cold, nor warm, nor equitable, nor variable climate has any appreciable influence, of itself, in the production of scrofula, and that a person predisposed to scrofula will enjoy no protection from the disease by a removal to a country colder, or even warmer, than his own. Dr. P., however, admits that, in European countries at least, scrofulous diseases are evolved or aggravated during the cold of winter.

The influence of occupation in the production of scrofula is examined with all the care its importance demands; and the extensive series of facts collected by the author upon this point are well worth a close examination, —we can afford room only for the following general results as to the influence of labour in the cotton and woolen factories.

In England and Wales, the deaths from scrofula, as compared with the total population, are as 7·6 to 100,000. In rural districts 9. In town districts 5. In factory towns with a population of 2,043,038, the proportion is 4. In non-factory towns, with a population of 2,870,416, the proportion is 5 to every 100,000. In the linen and cotton districts, having a

population of nearly 1,000,000, the gross mortality is 2,786; that from consumption .477, or 1 in 209; that from scrofula .004, or 1 in 24,872. In the woolen districts, comprising a population of nearly 750,000, the gross mortality is 2,242; that from consumption .396, or 1 in 252: that from scrofula .005, or 1 in 17,877.

The evidence he has collected upon the question of the influence of factory labour upon human life, has produced in the mind of the author a strong conviction that occupation in factories, though in many respects less to be desired than occupation in the open air, is yet accompanied by so many counteracting circumstances that the evils which may be inseparable from that occupation are mitigated, if not counteracted by the increased means of procuring the necessaries of life which it affords. The evils of factory towns do not consist in factory employment, but in the agencies which are commonly found in action in such towns.

Some observations follow, drawn, however, from imperfect data, in reference to the influence of close confinement and imprisonment in the production of scrofula.

To exhibit a fair exposition of the author's views of the efficient cause of the disease, we present the following extract from the summary appended to this portion of the treatise. The importance of the remarks contained in it will sufficiently excuse its length.

"The general mortality and the deaths from particular diseases bear a close relation to the poverty of the population, and to the vicissitudes, or alternations of prosperity or adversity to which they may be exposed; whilst wealth and stations, which ensure to the more elevated classes of the community abundant food, ample clothing, convenient and well-ventilated dwellings, and pure air, are nevertheless unfavourable to longevity; and the industrious labourer, whose toil ensures steady remuneration, and whose temperate habits and provident character ensure him the necessaries of life, good of their kind, and ample in quantity, is in the condition the most favourable to long life and uninterrupted health.

"In the last result, then, it is to diseased nutrition, however brought about, that we refer the production of scrofula; an opinion in which there may be no novelty, inasmuch as many authors have assigned to perverted nutrition a powerful agency in developing the disease, especially Carmichael, in England, and Lepelletres and Baudelocque, in France, yet my controversy with Baudelocque consists in a denial of the exclusive agency which he assigns to impure air in deranging nutrition:—and my object has not been to advance a novel theory, but to obtain, and group, and classify a collection of observed facts, so numerous as to enable us to distinguish between essential and secondary or accidental causes, and to ascertain (if such an estimate should be found to be practicable) the separate or relative value of numerous agencies in developing scrofula.

"Diseased nutrition is, then, I conceive, the cause of that condition of the system, which we term scrofulous; but diseased nutrition originates, it will be said, in various agencies, either acting separately or associated together. Thus the inheritor of a feeble frame may owe to that circumstance an impaired digestion, in spite of the solicitude, and it may have been great, with which he has been reared, and of the prudence with which his food may have been adapted to his condition: or his occupation may have been so long continued, or of such a character, or impure air may have been so constantly respired as in either case to derange the digestive functions; or, if no one of these agencies shall in itself have been sufficiently active to induce the disease, they may have been associated together, and when thus associated may so impair otherwise the functions of nutrition as to induce scrofula, even when the food has been abundant in quantity and judicious in kind. But the cause of diseased nutrition, at that period of life when the seeds of scrofula are sown, is, in the vast majority of cases, insufficient food, or improper feeding, and even if the less direct agencies, which we have been considering, occasioned scrofula much more frequently than we believe they do,

the distinction is of great practical importance, viz., that they do not act in virtue of a specific influence suited of itself to produce scrofula, but as general morbific agencies which impair digestion, and thus indirectly contribute to the production of the disease.

"That food, insufficient in quantity or innutritious in quality, stands in the relation of cause to the development of scrofula more directly than any other morbific agent is shown by the circumstance that wherever food is abundant in quantity, and of a sufficient generous character, scrofula is kept under, that is to say, it is less frequently seen, although other noxious agents are, perhaps, rife, and the general mortality is great, and that in our rural districts, where the air is probably pure and the occupation healthy, and where the general mortality is small, scrofula is largely developed, because the food, even when abundant, does not contain sufficient stimulus to preserve the frame in healthy vigour. Yet, although we may have no satisfactory proof that a contaminated atmosphere, or any one of the other indirect agencies to which we have referred, will operate so injuriously on the digestive functions as of itself to induce scrofula, I do not the less deplore the influence of those debilitating agencies, which impair the healthy activity and lessen the proper vigour of large numbers of our countrymen.

"That the advantages to the health of the community which have been held forth as the result of improved drainage and ventilation, have been very mischievously exaggerated, I believe, but it is not the less true that impure air and stagnant filth are noxious agencies, and that the dwellers in our crowded thoroughfares will be benefited by their removal."

"Great alternations of prosperity and adversity, sudden and extreme vicissitudes, large earnings to-day succeeded by half or no work to-morrow, uncertainty of occupation, irregular habits, prosperity inducing intemperance and creating factitious wants, whilst unaccompanied by those habits of providence which would prepare for the evil day, not far off;—all these, and many other such influences, operate with far more intensity on the manufacturing labourers than the atmosphere they breathe, or the courts and alleys they inhabit;—and according to the intensity of those influences they increase the general mortality instead of developing the slower and chronic derangement, which assumes the form of scrofula, and which is rarely induced by active agencies, but is manifested when the whole economy has been gradually and slowly contaminated.

"The frequency of scrofula amongst the classes of society who live in wealth or comfort, has been supposed to militate against any view of the disease, which assigned to insufficient food or improper feeding a large share in the production of the disease. But diseased nutrition may co-exist with sufficiency of food, and even with seemingly judicious feeding, and is, perhaps, as frequently found in the pampered child of luxury as in the cottage of the peasant."

The tenth chapter comprises the author's views of the treatment of scrofula. He first enters upon a consideration of those hygienic precautions which may often retard, and in some cases altogether prevent, the manifestations of the disease. His directions under this head are particularly judicious,—though they present nothing of a novel character.

After an interesting sketch of the various superstitious practices that have been adopted for the cure of scrofula, including a very interesting history of the "royal touch," the author enters upon a consideration of each of the more prominent remedies whose virtues have been particularly vaunted, by some even esteemed as almost certain specifics for the disease.

Mercury he denies to be an agent capable, alone and under ordinary circumstances, of removing scrofula; but as a purgative or alterative he believes that it will be found useful in many cases. When profuse purgation or salivation is induced by it he considers it always injurious.

"I believe," he remarks, "that the form of mercury which answers best in the treatment of scrofula is the Bichloride,—and I am fully convinced that in very minute doses, a twentieth of a grain, twice a day, for instance, combined with the

syrup of sarsaparilla, it does not yield in efficacy to iodine, baryta, or other medicines, which at present enjoy a more extensive reputation."

The specific power of iodine in the removal of scrofula, Dr. P. denies, and, although he believes that it is not ordinarily strong enough to make head against the disease in an unfavourable season of the year, yet he thinks he has known some cases in which decided benefit has seemed to result from its use, even when the season and other circumstances have not been favourable, and when no change in those circumstances has occurred beyond the exhibition of iodine: even in these cases, however, he would refer the benefit to a general alterative action upon the economy, and not to any specific action,—the general health has improved under the employment of the remedy, and the local disease has abated. Such cases, he adds, have however formed but a small minority of those in which he has administered the iodine.

The curative power of barium, in scrofula, Mr. P. considers as little, if at all, inferior to those of iodine. Its field of usefulness is, however, more limited,—of iodine we have the choice of many different combinations; barium yields but one. The barium seems to him to be a more certain stimulant, or he might even say irritant, than iodine, and consequently its use is clearly contra-indicated where there is much free inflammatory excitability of the system, but in cases marked by a tallow-like complexion, pale tongue, languid circulation, and irritability of the mucous surfaces, its virtues will be often very remarkably exhibited. He usually gives it in solution, one grain to an ounce of distilled water, with ten drops of compound tincture of gentian. Of this solution he commences with half an ounce, twice a-day; on no occasion has he exceeded three grains in the day, and he has never experienced any check in the administration of the medicine. Of its external employment he thinks less favourably.

The solution of caustic potash, he is satisfied, has, in many instances, exercised a salutary influence, and these were mostly cases in which much acidity pervaded the secretions, and acted upon the general economy.

Burnt sponge he considers to be perfectly inert,—he never saw it produce the slightest good effect.

There is scarcely any form of scrofula he has not seen to improve under the use of cod-liver oil, but he seldom was able to carry it far enough to produce any considerable amelioration; he considers that its good effects result from its improving digestion and nutrition.

In the internal use of sea-water, and the curative effects of sea-bathing, Mr. P. has little or no confidence. He believes the apparent good derived from them is to be attributed to the visit to the sea-shore at a favourable season of the year, and the tonic influence of the pure fresh air, change of scene, and bathing. His mind is strongly impressed with the conviction that the benefits derived from sea-bathing are not greater than might be obtained from a change to a pure air and the use of the simple cold bath in an inland situation. In the use of the cold bath the temperature of the water, and time of immersion should be so graduated as to be followed by decided reaction, but it must be borne in mind that in scrofulous patients the desired reaction is less certain than in healthy persons, and if this be not certainly obtained the bathing should be discontinued.

That the use of mineral water exercises any direct curative influence over scrofula, Mr. P. considers no proof has been adduced.

Our author is convinced that the season of the year is, beyond every other agent, except food, the one whose influence is greatest in the

excitement or cure of scrofula. He has satisfied himself that scrofulous sores are most numerous and aggravated in spring and the beginning of summer, that they are least frequent and most ameliorated at the commencement or the middle of autumn; and that at the one period they have been aggravated by the cold of winter, at the other they have been ameliorated by the warmth of summer, and this has happened when all other influences have been apparently unchanged. It must, therefore, be evident, he remarks, how defective the estimate of every plan of treatment is, which does not include the influence of season.

His own plan of treatment is, early in the disease, removal to a warm, dry locality, and, if possible, a change every month or two from one place to another; a properly regulated diet, with a small portion of animal food once or twice a day, according to circumstances; as much active exercise in the open air as can be borne without fatigue; airy sleeping rooms; friction of the surface with warm flannel before dressing in the morning.

In cases where the appetite is bad, and indigestion imperfect, an occasional emetic. If the biliary secretion be imperfect, calomel or gray powder, with rhubarb; if costiveness exist at the same time, warm purgatives; if all the secretions are preternaturally acid, alkalies with bitters. If the digestive organs are deficient in tone, wine, bitter ale, bark, iron, iodine, barium, or mercury, assisted or not by alkalies, may be required. The choice of the particular agent is a matter for the discretion of the medical adviser in the particular case; what is best in one instance will not be so in another.

"In a case where the general health has not greatly suffered, mercury, iodine, or barium, as alteratives, may do well,—in a case where the pale surface, the flabby textures, the languid circulation are prominent signs, some tonic, such as iron or bark, will be more clearly indicated; in some instances the cod-liver oil will exercise a favourable influence on nutrition. To do more with respect to the selection of a particular medical agent than afford these general indications is hardly desirable."

When the gland has suppurated, unless ulceration is inevitable, the abscess should not be opened,—but where the rupture of the integuments is clearly threatened, as a large ulcer, and much subsequent deformity may occur from the gradual thinning, preparatory to the fluid making a way for itself, it is best to anticipate that result.

"If this be done at a comparatively early period, the cutting instrument is the appropriate agent for the purpose; if it be done tardily, when the integument is thinned and of a violet colour, the caustic, so applied as to destroy the thinned integuments, will occasion less deformity."

Mr. P. is not disposed to underrate the value of the commoner local agents in the treatment of strumous glands.

"Though such glands are the indication of a general evil, they constitute in themselves a local one also,—and as general remedies are often powerless to arrest the progress of the disease, it is important to ascertain what may be reasonably expected from direct treatment. Upon the constitution itself, it is of course not pretended that we can act by the means I shall now indicate. I think that when the signs of inflammatory action are unequivocally manifested by pain, heat, and redness, such inflammation may frequently be treated with advantage like common phlegmon, by leeching and cold."—"Where the tumour is more chronic, frictions with mercurial or iodine ointment are sometimes found useful."

From the foregoing outline of the leading points embraced in Mr. P.'s treatises, our reader will be able to form an opinion of the gene-

ral conclusions to which the author has arrived in relation to the nature, causes, prevalence, and treatment of scrofula. Of the character, extent, and value of the facts and observations upon which these conclusions are based, no correct estimate can be formed except by an attentive study of them in the form in which they are presented in the several chapters of the work. They are of a character and magnitude which have precluded any attempt at analysis.

The treatise is unquestionably one of much value and interest, and notwithstanding some errors may, perhaps, be detected in the data presented by the author, and a few inaccuracies in the deductions he has drawn from them, still the work is one which is calculated to correct many of the errors into which the profession have been led, in regard particularly to the etiology of scrofula, while at the same time it presents an admirable specimen of the true manner in which investigations into the causes and prevalence of every other disease should be conducted; though we fear there are few who will be found willing to undergo the labour and are able to devote the time which such an inquiry demands. D. F. C.

BIBLIOGRAPHICAL NOTICES.

Art. XV.—1. *The Diagnosis, Pathology, and Treatment of the Diseases of the Chest.* By W. W. Gerhard, M. D., Lecturer on Clinical Medicine to the University of Pennsylvania, &c. Second edition, revised, and enlarged. 8vo. pp. 288. Philadelphia: Barrington & Haswell, 1846.

2. *The Young Stethoscopist, or the Student's aid to Auscultation.* By Henry J. Bowditch, M. D. 12mo. pp. 278. N. York: J. & H. G. Langley; Boston, William D. Ticknor & Co. 1846.

3. *A Clinical Introduction to the Practice of Auscultation and other modes of Physical Diagnosis, intended to simplify the study of the Diseases of the Lungs and Heart.* By H. M. Hughes, M. D., Fellow of the Royal College of Physicians, &c. 12mo. pp. 270. Philadelphia: Lea & Blanchard, 1846.

4. *Manual of Diagnosis of Diseases of the Heart, preceded by Clinical Researches for the study of these affections.* By Dr. Felix Andry, Ex-chef de clinique, at the Hospital of La Charité. Translated from the French by Samuel Kneeland, Jr., A. M., M. D. 12mo. pp. 168. Boston: W. D. Ticknor & Co. 1846.

If medical students and practitioners are not now well versed in physical diagnosis, it is certainly not because there is any lack of treatises upon the subject. The medical press teems with them of every form and size. Hardly has one been issued, before another calls for notice, claiming to supply the deficiencies or correct the errors of its predecessors. Stokes, and Williams, and Raciborski, and Walshe, and Barth and Roger, have all in turn been commended to students of medicine, and now to swell the throng of candidates for public favour appear three new names, and one, already known and honoured, with fresh claims to our regard. If this multiplication of instructors might be fairly considered an evidence of an increased interest in the subject of physical diagnosis, or as a proof of perfected knowledge amongst the younger members of the profession, it were well, and we should hail it as an omen of scientific advancement. But there is some reason to fear that the case is far otherwise; that while the means of learning the theory of auscultation, &c., are more than ever within reach, the opportunities for applying it to practice are diminished, and those which are still accessible, singularly and systematically neglected. The very best of the treatises mentioned are almost worthless unless expounded by a living teacher, and illustrated at the bed-side. They are worse than worthless; they are pernicious: they lead to positive error. Unless the student be told what are the sounds he hears in auscultation, unless one more experienced than himself inform him of the name of every sound, and present to his ear the sound corresponding to every name; the descriptions and definitions of his "Manual" must continue meaningless to him; or if, by chance or skill, he now and then succeeds in rightly coupling the characters of a rhonchus with its corresponding name, he can never feel assured of the fact until it is corroborated by a living teacher. He is as little qualified to interpret acoustic signs, as one who has learned to read a foreign language by the help of dictionary and grammar, is to translate that language when he hears it spoken. Those who have honestly made the experiment of learning auscultation through books alone, will be the very first to admit the justness of these views. For the beginner, clinical instruction in auscultation is essential. The more he listens, and the less he reads, the surer and more rapid will be his progress. When once his ear is familiarized to the new language, he may study with advantage its theory; indeed he *must* then study it in order to perceive the principle which pervades the phenomena he has witnessed, and to acquire the power of analyzing and interpreting them in whatever new combinations they may occur.

Treatises on auscultation, then, are valuable, not as introductions to the elements

of the subject, but as keys for their explanation. Of course their value will depend upon various circumstances; upon their clearness of style and logical arrangement; the accordance of their theory with the facts revealed by observation; their greater or less exactness of description; their minuteness and completeness of analysis; their correct measurement of the significance of sounds, both positive and differential, &c. In these respects there is as much difference among them, as among the grammars of a language: some of them are as defective in principle and clumsy in execution, as others are logical and elegant, while in all, the essential elements,—those discovered by Laennec,—may perhaps exist in nearly the same degree.

The first of the works named at the head of this notice is not to be classed with the others, except in so far as it comprises an ample discussion of physical diagnosis. It is also a complete exposition of the pathology and treatment of thoracic diseases. It not only explains the method and describes its application, but also sets their just value upon the results which it furnishes, by arranging them along with the functional symptoms, and the pathological anatomy of each disease. This is the best refutation of the charges which are constantly made against physical exploration in medicine, by those who appear to imagine that science can never advance beyond the point at which they ceased to learn. "Deductions from the whole of the physical signs and functional symptoms constitute the diagnosis, and not the naked examination of a single set of them," says Dr. Gerhard; and again, the results of auscultation, &c., are by him "regarded as more useful than any symptoms taken singly, but as neither the only class of symptoms to be relied upon, nor as superseding the general signs." In his opening chapter he insists strenuously upon this proposition, and throughout the whole work he develops and illustrates it. Indeed the clear and complete manner in which this is done, forms the distinctive character of the treatise, and its peculiar merit; a merit which we do not equally recognize in any other English work on diseases of the chest, except that of Dr. Stokes, which, however, is less rich in details than is required by the present state of medical science. The Dublin Professor, and Dr. Gerhard, appear to be agreed that, in the words of the latter, "the same mental discipline, and the same rules of philosophizing are required" in medicine as in other sciences; and, accordingly, the arrangement of their materials by these authors strikes the reader at once as an instance of logical sequence, and an example of sound medical reasoning. They reach the point aimed at by successive and sure steps, but neither fly nor jump to a conclusion. It were devoutly to be wished that medical writers, generally, could be persuaded that something more than an acquaintance with text books, and the art of prescribing, is necessary to fit a man for being an author or a teacher; that there is such a thing as medical philosophy, an art of observing, and reasoning, without which they must labour in vain for their own enlightenment or the instruction of others; that education, and discipline, and industry, which in the simpler days of our forefathers, were supposed to be necessary for a scientific man, are, in truth, quite as needful now, though they have almost ceased to be thought so. If such a persuasion were general, we should not so often have to lament the publication of unreadable essays by men of real but undisciplined ability, and we should have the satisfaction of hailing more frequent and more valuable additions to the permanent medical literature of the country.

While the reasoning of Dr. Gerhard appears to us worthy of all commendation we are compelled to express a less favourable opinion of his style, which too often gives evidence of haste or carelessness. In a second edition this defect is the less excusable, for the labour of a few hours would have sufficed to correct all inaccuracies, and redeem the work from its only conspicuous blemishes.

2. Dr. Bowditch's Manual is of very modest pretensions, addressing itself only to the student, and referring him to more elaborate treatises for the details of physical diagnosis. It is purely elementary, and does not claim to set forth any novelties; but there are an accuracy, a freshness, and a vivacity in its composition, which absolve it from the suspicion of being a mere compilation, and give it the air of a purely original work. The author appears to have the two great requisites for the office of teacher, a thorough understanding of his subject, and much ease in com-

municating his ideas. He has made his little book quite an illustrated edition, by adorning it with correct wood-cuts of all the different forms of stethoscopes, and other instruments employed in auscultation and percussion, and by having the capital letters at the commencement of several chapters formed by these instruments, or by groups of them,—a very ingenious artistic device. The first two-thirds of the work are equally divided between the discussion of diseases of the lungs and heart, and in the remaining third, there are concise accounts of auscultation applied to pregnancy, to diseases of the brain, and to fractures, with a notice of Messrs. Cammann and Clark's method of auscultatory percussion, and a summary of what is known in veterinary auscultation. These subjects are treated at sufficient length to fulfil the author's purpose, and with that precision and facility which all would anticipate who know his untiring industry, his sagacity and honesty as an observer, and the rare opportunities he has enjoyed for exercising and perfecting his skill.

3. The first thing that struck us on opening Dr. Hughes' "Clinical Introduction," was the difference of its style from that of the two works just noticed. It is perfectly free from those colloquial and even trivial phrases with which they are too often defaced, and if it makes no pretension to elegance, it is everywhere at least correct and scholar-like. Why is it that our writers are so negligent of the graces of composition, and that, for the most part, they seem to set at defiance all grammatical rules? Though not a few British physicians are open to a similar charge of negligence, it must be confessed that most of the English medical publications are remarkable for a pure and elevated style rather than the opposite. Without by any means offering Dr. Hughes' style as a model of elegance, it may be described as plain and perspicuous. His sentences have this one great advantage over those of some writers we could name,—they can all be parsed.

The general plan of Dr. Hughes' work is that of MM. Barth and Roger, comprising directions and cautions for the examiner, an explanation of the method, (percussion or auscultation, &c.); a description of the sounds, &c., which it furnishes, and an indication of the diseases in which the several signs occur. In the Preface, the author bestows very warm but merited praise on the "admirable little book of Barth and Roger," but complains that it treats of auscultation alone. Dr. Hughes seems not to have been aware that a second edition of MM. Barth and Roger's work was published in 1843, which includes an essay upon percussion; for had he known it, he would scarcely have ventured the assertion, "that a work was wanted in which should be simply explained to the student, not merely the origin, character, and diagnostic value of certain physical signs, but also the manner in which he should proceed to elicit them; and which should direct him how to percuss, as well as state the indications afforded by percussion." All this, and more, had been done by MM. Barth and Roger, and we are constrained to say, (highly as we esteem Dr. Hughes' essay,) much better done, more fully, more logically, more practically done. Under the circumstances, then, we think that the publication of a new manual was needless. But passing over this question of expediency, and comparing the work with others of English origin, it must be admitted to be the best *elementary* exposition of the signs, and the causes of the signs, of thoracic diseases, and of the mode in which a knowledge of them is to be obtained. Inferior to the treatise of Dr. Walshe as a guide to the diagnosis of diseases, an office which the author expressly disclaims for it, it is superior to that work in plainness of meaning and simplicity of arrangement, and in the avoidance of those nice distinctions and multiplied terms which are perplexing and discouraging to the student, although well appreciated by the experienced observer. For the beginner, especially for one whose opportunities for oral instruction are imperfect, Dr. Hughes' work appears to us peculiarly adapted; it will teach him in the best manner, all of auscultation and percussion that it is possible to learn through such a medium.

4. We have hardly alluded to the portions of the foregoing treatises devoted to diseases of the heart, because we intend to make some remarks applicable to them all while noticing Dr. Andry's Manual. The greater part of it is occupied by the details of twenty-one fatal cases of cardiac disease, including the symp-

toms of each during life, the diagnosis then made, the dissection, and finally, the inferences to be drawn from the whole history. The simplest cases are first considered, to wit, those of hypertrophy alone, and afterwards the more complicated forms of valvular disease. Such of these as we have read, and were able to understand, in their English dress, are interesting, and serve very well to illustrate the principles of cardiac pathology, though not always the principles of Dr. Andry, nor of his teacher and exemplar M. Bouillaud, whose spirit breathes through all the pages of the work. Everywhere uncompromising dogmatism startles the reader from his philosophic hesitation, and the most ingenious sophistry makes facts seem as pliant as if truth were a mattef of mere indifference or caprice. The "cases" are preceded by a theory of the sounds of the heart, and followed by the application of this theory to the murmurs and other signs of heart-disease. It is in the main identical with that of Hope, Williams, and others, including the authors of the works just noticed, none of whom, any more than Dr. Andry, seem to be aware that serious objections may be brought against it, or that some portions of it are, perhaps, untenable.

All these writers agree that the impulse of the heart is owing entirely to the systole of its ventricles, and consequently that the first sound, which is synchronous with the impulse, is due to that contraction, or to something that takes place simultaneously with it. It is unnecessary to inquire into the origin of this doctrine on the present occasion; let us briefly examine the objections to its being received. And, first, the shock of the heart against the parietes of the thorax is not confined to its apex; in most thin persons, and in others who have some enlargement of the organ, there is a distinct movement of the parietes of the chest opposite the ventricles, before that of the apex is perceived. Now admitting that during the systole the apex is tilted upwards so as to strike the ribs, how is the previous shock to be explained? Can a hollow muscle increase in bulk while effacing its cavity? Assuredly not. The body of the ventricle, during the systole, must retire from the ribs; it can strike them only during the diastole. This appears to us an inevitable conclusion from the premises, and depends upon established physical laws, but it is also demonstrated by direct experiment. And here we leave out of view all those experiments performed on warm-blooded animals, where the circulation is maintained by artificial respiration. However valuable they may be for localizing the sounds of the heart, they are rendered quite worthless for illustrating the rhythm of its movements, by the state of congestion of all the cardiac cavities. But in vivisections of cold-blooded animals, as of frogs, the slower movements of the heart, and the more natural respiration, permit the action of the organ to be studied. The uniform testimony of competent observers of this point is that during the *diastole* the heart swells up towards the external wound, but that during the systole it buries itself in the thorax. The case of congenital protrusion of the heart reported by Cruveilhier, and quoted by Dr. Carpenter in his Physiology, is to the same purpose; "the diastole of the ventricle had the rapidity and energy of an active movement, triumphing over pressure made upon the organ, so that the hand closed upon it was opened with violence." A similar case, too, reported by Dr. Robinson, of Va., (*Am. Journal*, Feb. 1833,) demonstrates the same activity of the ventricular diastole. Indeed this was the doctrine both of Harvey and Haller. Physiological observation, therefore, would teach us that the impulse of the heart is chiefly due to the ventricular diastole. We now proceed to show that its teaching is confirmed by pathology.

It is curious to observe how blind men are to the most evident facts when once they have pledged themselves in support of a theory. As a matter of course they who believe the impulsion of the heart to depend entirely upon its systole, teach that the impulse is strong in proportion to the development of the ventricle; that hypertrophy of this part is always attended with increased impulse. Dr. Gerhard affirms that "as in hypertrophy, the size is necessarily increased, while the tissue of the heart becomes stronger and firmer, there is necessarily an increase in the power of impulsion." Dr. Bowditch, that "the impulse is synchronous with the contraction of the ventricles," and that "it is most strikingly increased by hypertrophy:"—Dr. Hughes, that "when hypertrophy exists, of the ventricles or of the auricles, but of the left ventricle more especially, the impulse is powerful and heaving;" and finally, Dr. Andry, "if the heart often beats with such force

where the ventricular contractions are only momentarily increased, there is still greater reason for its doing so when the increase is permanent and organic, as in hypertrophy." One would suppose that such uniformity of doctrine could only result from great clearness and constancy in the evidence of facts; that it was a legitimate induction from many well-observed cases of hypertrophy. And yet it is no more than a deduction from an imperfect theory; the testimony of observation is directly adverse to its truth. That we may not be accused of packing a jury to try this cause, let us analyze the cases detailed by Dr. Andry, the first that present themselves, and which their reporter hardly imagined could bear witness against his doctrine. We premise that, according to Dr. Andry, the ordinary weight of a healthy adult heart is eight or nine ounces.

Case 1. Impulse not mentioned. Hypertrophy great, confined to left ventricle.

Case 3. Impulse hardly perceptible. Auricles *dilated;* left ventricle one inch thick at base.

Case 4. Impulse not mentioned. Left ventricle hypertrophied; four-fifth inches thick; auricles natural; heart weighs 11 oz.

Case 5. Impulse feeble. Ventricles enormously hypertrophied; auricles *dilated;* weight 25 oz.!

Case 6. Impulse not mentioned. Left ventricle one inch at base; auricles natural; weight 16 oz.

Case 20. Impulse feeble. Left ventricle *only* hypertrophied; auricles not described; weight 15 oz.

Here are six of the cases, the only ones in which the impulse is described either as feeble, or from not being described at all, we must presume to have been at least no greater than natural; yet in every one of them the hypertrophy was considerable, in one excessive, and in all confined to the ventricles. Why was not the impulse strong in these cases? They present all the conditions required by theory for producing this result; but the result is wanting. Do they therefore invalidate the theory? Let the reader judge. But this group of cases has not yet furnished all its evidence. Observe that in the third and fifth cases in which the impulse is noted as feeble, the auricles were found *dilated;* that in the twentieth case, in which also the impulse was feeble, the auricles are not described at all and may therefore be assumed as natural; and that in the fourth and sixth cases, in which the impulse is not mentioned, the auricles are said to be natural. Are this dilatation of the auricles, with a feeble impulse, and this normal condition of the auricles with a natural impulse, mere coincidences? Let us endeavour to find a reply to this question by contrasting with the foregoing cases those in which there was a strong præcordial impulse.

Case 10. Impulse strong. Dilatation and hypertrophy of both *auricles* and ventricles; weight of heart 15 oz.

Case 13. Dull heavy sound of a shock. Hypertrophy of left ventricle and both *auricles;* weight 16 oz.

Case 14. Impulse strong and extensive. Hypertrophy, with dilatation of right ventricle and *auricle;* columnæ of *auricle* double their normal size.

Case 21. Impulse strong. Columnæ of right, and walls of left *auricle* hypertrophied.

Case 18. "Pulse small, disproportioned to the force of the heart's beatings." Ventricles slightly hypertrophied; both *auricles* dilated and much hypertrophied.

These are all the cases, except one, in the series before us in which the impulse is clearly described as vigorous. What element do they present in common with those of the first group? Hypertrophy of the ventricle. Yet in the one group the impulse is strong, in the other feeble or natural. What element belongs to the second different from any existing in the first group? Hypertrophy of the auricle. Does the difference of function then depend upon the difference of lesion? does abnormal impulse proceed from auricular hypertrophy? We do not see how any other than an affirmative answer can be given to this question. If it be first proved that simple ventricular hypertrophy does not coincide with augmented impulse; then that auricular hypertrophy uniformly does; and further, that auricular dilatation is accompanied with a feeble impulse; the conclusion does appear to us inevitable that the impulse of the heart is chiefly due to the contraction of its auricles. Does not, then, pathology confirm the conclusions of

physiology upon this subject? We shall present one other pathological consideration before leaving this discussion. It is well known that there is sometimes a want of correspondence between the præcordial and the radial pulses, that, for instance, there may be two or three of the former to one of the latter. Here is a fact which ought to have shaken confidence in the theory of Bouillaud and Hope; for how could the ventricle contract without propelling its contents into the aorta and causing an arterial pulse. To avoid this palpable objection Bouillaud resorts to a supposition which it is almost incredible that so sagacious a physician should for a moment entertain; to wit, that the ventricle being incompletely filled on account of an auriculo-ventricular contraction, *beats almost empty*. But though it contain never so little blood, its contraction will propel that little, and produce an arterial pulse. This is not a case like that of approaching death, when the blood accumulates in the trunk, and the heart is so feeble that the artery at the wrist is empty, although the carotid perhaps throbs in unison with the heart. In the case we are considering there are two or more blows in the præcordium for one pulse in *any* part of the arterial system. No blood whatever leaves the heart at the first impulse. How then can the impulse be owing to contraction of the ventricle? But if the impulse be regarded as dependent upon the diastole, the case is plain. The mitral orifice is contracted, the first systole of the auricle cannot force enough blood through it to excite the ventricle to contraction, but enough only to cause a slight impulse, a second or third systole of the auricle renews the impulse and completes the repletion of the ventricle which then contracts. The fact of distinct murmurs accompanying these supernumerary impulses, when the edges of the mitral orifice are roughened, illustrates and confirms this view.

The foregoing considerations would appear to warrant the conclusion that the impulse of the heart is mainly due to the ventricular diastole which, in its turn depends upon the auricular systole, a conclusion which might have been supported by many other facts than those adduced, and especially by many drawn from the nature and succession of cardiac murmurs. We have not leisure at present to enter upon this interesting discussion, but would refer those of our readers who desire to examine it, to the treatises of Harvey and of Haller, and to the essays of MM. Beau, Fauvel, Guyot, Hardy, and Behier, and especially to the "*Pathologie Générale*" of the latter two gentlemen. Meanwhile we shall state, in a very few words, the theory which appears to us to rest upon true observation. During the long pause the ventricle remains contracted, and the auricle fills up with blood; during the first sound the auricle contracts forcibly, dilating the ventricle and causing part of the impulse, and then *without any intermission* the ventricle contracts, striking its apex against the thorax;—the first sound is caused by the passage of blood through the orifices, by its irruption into the ventricle, by the diastolic and systolic impulses, by the closure of the auriculo-ventricular valve, and by the muscular contraction of the walls of the heart. The second sound is synchronous with, and caused by the flapping of the semilunar valves. We feel assured that any of our readers who are conversant with diseases of the heart will be able to explain, by means of this theory, all accurately observed cases with a much less expenditure of ingenuity than is wasted by Dr. Andry in accommodating his "observations" to the prevalent doctrine, and much less violence to common sense than is done by Dr. Hope in the following passage. The diastolic impulse "is occasioned by the diastole of the ventricles, during which action the heart sinks back from the walls of the chest, and this sinking back terminates in a jog or shock, occasioned by the refilling of the ventricles."

Of the translation of Dr. Andry's Manual we should be glad to speak with approbation, were it possible. If the translator were not well acquainted with the English language there would be less occasion for our complaining of the execution of his work; but more than one paper by the same hand in this Journal attests his competency. We are, therefore, reluctantly compelled to conclude that carelessness, and not want of skill, is to be charged with the Gallicisms which disfigure almost every page of the translation, and which none but a person having some knowledge of the French language would be likely to interpret correctly. It is a common error to suppose that translating, even from a language one both reads and speaks fluently, is an easy task. We are persuaded that among translators there are very few, even of the most competent of them, who do not com-

pose with greater ease and purity than they translate. It is an art slowly and laboriously acquired, to transfer the ideas of an author from one to another idiom, so that they shall appear to have been originally written in the latter; and it is one which we earnestly commend to the study of all our translators, present and future, of French medical works. A. S.

Art. XVI.—*Report to the Committee of the City Council appointed to obtain the Census of Boston, for the year* 1845, *embracing collateral facts and statistical researches, illustrating the history and condition of the population, and their means of progress and prosperity.* By Lemuel Shattuck. Boston, 1846.

This is a handsome octavo volume, containing 275 pages, with two maps, one exhibiting Boston and its environs on a large scale, the other presenting a sketch of the State of Massachusetts, together with the neighbouring States of Rhode Island, and parts of New Hampshire and New York. Instead of the ordinary meagre decennial census, with a few collateral facts, Mr. Shattuck, the able statistician, whose valuable labours we have so frequently had occasion to notice, presents us in his report with almost every particular which can serve to throw light upon the condition of the population of the flourishing city of Boston. The following topics have received particular attention:

1. Historical notices of the population. 2. Errors of the national census of 1840. 3. Mode of taking the census of 1845. 4. Numbers of the population in 1845, and its past increase. 5. Population of the wards and sections. 6. Places of birth of the population. 7. Classes of the population in regard to colour, sex and age. 8. Dwelling houses of the population. 9. Supply of water. 10. Domestic condition. 11. Education. 12. Legal voters. 13. Occupations. 14. Progressive wealth. 15. Public charities. 16. Pauperism. 17. Crimes. 18. Moral and religious institutions. 19. Births, marriages and deaths. 20. Health. 21. Government. 22. General views and conclusions.

The information upon these several topics, though presented with as much brevity as the occasion admitted of, covers a wide field of investigation. It must all prove more or less interesting at home, whilst much will be acceptable to the distant and general inquirer. The ordinary limits of a bibliographical notice will not, of course, admit of more than a passing glance at some of the contents of Mr. Shattuck's valuable book.

By his enumeration it appears that the population of Boston in 1845, amounts to 114,366. The coloured people comprise only 1,842, or 1.61 per cent., whilst the foreigners and their children amount to no less than 37,289, being 32.61 per cent. of the whole population. The proportion of males to females in the general population is as 100 to 101.03. This very trifling disparity is regarded as a sign of the great prosperity of the place, in consequence of which large numbers of young men are attracted to the city for the purposes of trade or labour.

Births.—Considering how much has been done by Massachusetts in collecting information calculated to show the condition of the people and their resources, it is somewhat surprising that her metropolis should have no regular provision for registering the number of births which annually take place. At several periods imperfect registers have been kept, but as these generally depended upon the record of baptisms, it is evident that they must be partial in a country without a regular church establishment. The plan of keeping a register of the practitioners of midwifery, and making it obligatory on them to report the births coming under their cognizance, sending an officer of the board of health to collect their returns at stated periods, will do all that may be necessary towards obtaining the desired information.

Mr. Shattuck makes the following sensible observations under the head of

Public Health.—"No subject is more intimately connected with the prosperity and happiness of a people, than the degree of public health that they enjoy. Some places and some circumstances are known to be more favourable than others to the development and prolongation of the vital energies of man; and it is a matter of the greatest moment to the whole population collectively, and to each

one individually, to know what facts exist in the place selected for a place of residence, which influence its character in this respect. There is a mode by which all this information may be obtained; and by which the force of mortality pressing upon a people may in some degree be weighed and measured. This mode is an accurate enumeration of the number and ages of the living, an accurate registration of the births, and the localities, circumstances, and causes of death; and an intelligible abstract of these facts. This matter may be illustrated by the information we already possess. It appears from accurate investigations now made, that of 100 deaths in two different places, 40 may take place in one and 60 in the other, showing that mortality presses upon the one with fifty per cent. greater force than upon the other. In a subsequent part of this report, it appears that of 16,414 deaths in the ten years, in the period 1831 to 1840, only 6.46 per cent. occurred in June, and 10.74 per cent. in September, showing that mortality pressed upon us with 66.25 per cent. greater force in the latter, than in the former month. It also appears that in the last five years 4,859 persons died under five years of age, showing that mortality pressed upon that tender age equal to 46.62 per cent. of all the deaths. It moreover appears that in the same time 812 deaths were caused by *scarlatina*, showing that that disease, or that form or force of mortality, pressed upon us equal to 7.96 per cent. of all forms or forces. In like manner may this force be weighed and measured in all its details. The accuracy of the measurement depends, however, upon the degree of accuracy by which the facts are registered and abstracted.

"We are aware that objections exist against inquiries of this kind—most people being satisfied with the generally received opinion, that 'no place is more healthy' than the one they live in. We have also been told that this is a subject which might be interesting to a medical man, but not to the people generally! Others have objected to any investigation, which might show one section of the city to be more unhealthy than another, because it would *impair the value of real estate!* It has, however, appeared to us that if facts do exist, which show any section to be unhealthy, they should be made known, that the lives, the health, and the happiness of our fellow-beings may be preserved; and that the suffering, and the public and private burdens which their premature sickness and mortality occasion, may be averted. In proportion as we view *human life*, with all the manifold consequences of its preservation, to be more valuable than the few dollars and cents, more or less, which a landlord may receive from a tenant in an unhealthy locality, in the same proportion should we value the exhibition of facts which have a bearing on this subject. The private, social, or public consequences of sickness and mortality cannot be measured by money. This is a matter of great magnitude, and demands a far more extended examination and discussion than can be given in this report. Compared with it, all other investigations are unimportant. It concerns ourselves, our health, our existence; and the persons, the health and existence of all that great mass of human beings that congregate in this growing, prosperous city. But how strongly soever we might be inclined to go into the subject, the object of this report throws around us such restraints, that a few only of the facts, which have been gathered, can now be presented."

The diseases, or causes of death, are given by Mr. Shattuck in two tables, one arranged in alphabetical order, and containing the numbers that died by each disease in each year, since 1811; the other, classified with some modifications, according to the arrangement adopted by Mr. Farr, in the Reports of the Registrar-General of Births, Deaths, and Marriages in England.

The tabular statements and observations showing the deaths from particular diseases and classes, with the proportions of deaths occurring at specific periods of life, and in the various seasons, afford a highly interesting and valuable portion of the book under notice. No one unacquainted with such investigations can form an adequate idea of the labour and close scrutiny required in obtaining the results which Mr. Shattuck has presented for the convenient inspection of those interested in researches connected with the public health and industrial resources of Boston.

G. E.

ART. XVII.—*Elements of Physiology, including Physiological Anatomy, for the use of the Medical Student.* By WILLIAM B. CARPENTER, M.D., F.R.S. Fullerian Professor of Physiology in the Royal Institute of Great Britain, &c. &c. &c. With one hundred and eighty illustrations. 8vo. pp. 556. Philadelphia, 1846, Lea & Blanchard.

No one need now be deterred from entering upon the study of physiology, in consequence of the want of ample and efficient guides. Notwithstanding the rapid advances which the science has made, and the immense mass of important facts in relation to the organization and vital laws of the animal economy, that have been developed within the few past years, we are already provided with numerous elementary treatises, which present a very full and able exposition of the actual state of physiology—embracing a digest of every important addition made to it up to the present day. Among these the treatise of Dr. Carpenter must be assigned a very high rank. As an outline of the principal and leading facts of physiology—both general and special—it will bear a very advantageous comparison with any of the other works of a similar character with which we are acquainted. While it is sufficiently minute on those points, an accurate acquaintance with which is essential to a correct appreciation of the organization and functions of the living body, its details are nevertheless of that plain and general character so essential to an elementary treatise for the use of the student. The author has evidently aimed at a selection of what is of the most importance to those who are just entering upon the study of physiology, and lies most readily within his comprehension, and has been desirous rather to impress the minds of his readers with a clear notion of what he considers the leading or typical facts of the science, than to load their memories with details.

The leading object of the author, as he remarks in his preface, has been to convey to the student as clear an idea as possible of the principles of physiology, to point out the manner in which these principles should be applied, and to give an outline of the most important facts which indicate the nature of the various changes taking place in the living organism. In following out this intention, he has thought it right to adopt a plan which, so far as he knows, is a novel one:—namely, to commence his exposition of the characters of Organized Structures and of Vital Phenomena by a full account of the Development and Metamorphoses of Cells, and of the purposes which these effect in the living body, either in their original or in their altered condition. He is of opinion that the inferences which may be drawn from the observations on this subject, that have rapidly accumulated during the last few years, are entitled to hold the same rank in Physiological Science as that taken by the doctrine of Mutual Attraction in General Physics, or of Elective Affinity in Chemistry; and that the enunciation and development of these should consequently hold the first place in an Elementary Treatise on Physiology. The third chapter, constituting more than one-fourth of the entire treatise, is therefore devoted to this subject, and it presents certainly a very able digest of all the facts that have been developed in relation to it—well arranged and very clearly detailed.

Although the present work combines, to a certain extent, the scope of Dr. Carpenter's two larger works on physiology, yet it cannot be regarded as a mere abridgment of these—it is composed with but little reference to them, and on a plan which is in many respects different.

We can recommend it to the student as an admirable manual for his use—forming a proper and useful introduction to the study of the more extended works on the same subject, in which the several topics it involves are treated in all their details.

The numerous beautiful and very accurate wood-cuts with which the work abounds, serve to render more clear and definite the descriptions given in the text, and thus to facilitate the acquisition of correct views in relation to many subjects of which without them it would be extremely difficult to convey to the student of physiology any accurate notion. D. F. C.

ART. XVIII.—1. *Report of the Pennsylvania Hospital for the Insane, for the year* 1845. By THOMAS S. KIRKBRIDE, M. D., Physician to the Institution: pp. 56.

2. *Third Annual Report of the Managers of the (New York) State Lunatic Asylum, (including the report of the Superintendent,) made to the Legislature January 23d,* 1846: pp. 61.

3. *Report of the Mount Hope Institution for the year* 1845. By WILLIAM H. STOKES, M. D., Physician. Baltimore, 1846: pp. 42.

4. *Twenty-Eighth Annual Report of the Physician and Superintendent of the M'Lean Asylum for the Insane, to the Trustees of the Massachusetts General Hospital*: pp. 28.

5. *The Thirteenth Report of the Superintendent to the Trustees of the State Lunatic Hospital, Worcester, Mass.* From Dec. 1st, 1844, to Nov. 30th, 1845, inclusive: pp. 106.

6. *Annual Report of the Directors and Physician of the Kentucky Lunatic Asylum to the Legislature, December session,* 1845: pp. 30.

7. *Eighteenth Annual Report of the President and Directors of the Western Asylum, to the Legislature of Virginia; with the Report of the Superintendent and Physician:* for 1845: pp. 32.

8. *Twenty-ninth Annual Report on the state of the Asylum for the relief of persons deprived of the use of their Reason.* Philadelphia, 1846: pp. 36.

1. BY this, the Fifth Annual Report, by Dr. Kirkbride, we learn that "at the date of the last report there were 151 patients in the hospital, since which, 177 have been admitted, and 159 have been discharged or died, leaving 169 under care at the close of the year. The highest number in the house at one time was 174; the average number for the whole year has been 162—being more than at any previous period in the history of the institution."

"Of those discharged during the year 1845, were cured 80; much improved, 5; improved, 24; stationary, 30; died 20. Total 159."

Dr. Kirkbride, in common with the superintendents of several other asylums for the insane in this country, complains of the removal of many of his patients before the accomplishment of an adequate trial of curative treatment. No less than eighteen were thus prematurely taken away during the past year. At least ten of these were believed to be curables. This mistaken course, on the part of the friends or guardians of the insane, is not only directly detrimental to the patients, but it constitutes an important obstacle to the scientific investigation of the disease. The actual degree of curability of mental disorder can never be ascertained until all who are afflicted with it shall be subjected to a sufficiently prolonged course of treatment.

Causes of death.—Paralysis, 4; apoplexy, 1; tubercular consumption, 3; epilepsy, 3; acute bronchitis, 1; enteritis, 1; exhaustion of acute mania, 2; gradual wasting of the vital powers, 2; gangrene, 1; suicide, 1; old age, 1.

	Males.	Females.	Total.
Whole No. of patients admitted into the hospital	447	322	769
" " discharged or died	361	239	600
" " remaining	86	83	169
Of the 600 discharged or died, there were *cured*	188	125	313
" " " " " much improved	28	22	50
" " " " " improved	51	28	79
" " " " " stationary	51	37	88
" " there died	43	27	70
Of the whole number, there were single	269	136	405
" " " married	152	139	291
" " " widowed	26	47	73

A uniformity of signification placed upon the terms adopted as heads under which to arrange the patients discharged from our several institutions, is necessary to the accuracy of any general rules which may ultimately be derived from these data. Dr. Kirkbride thus defines the terms employed by him:—

"By *'cured'* is meant that the patient's mind has been restored to what was its natural state before the accession of the disease which brought him to the hospital. Natural eccentricities of character do not constitute insanity, and these, of course, are not expected to be removed by a residence in any institution. By *'much improved'* we mean that the improvement has been very marked, and that the patient is, in reality, very nearly well. In most of these cases it is supposed that a longer residence with us would have enabled us to discharge them cured. Many of them are known to have become quite well after arriving at home. Those *'improved'* have not advanced so far in their convalescence, and although the amendment has been decided, the ultimate result has been more doubtful. The *'stationary'* have not improved, mentally, during their residence in the hospital."

For years it has been regarded in Europe as a demonstrated proposition, that insanity is more frequent in persons between the ages of thirty and forty years than in any other decennial period of life. Dr. Thurnam, in his recent elaborate work upon the Statistics of Insanity, proves the proposition to be false in regard to England, and it has long since been shown to be so in regard to the United States. In both of these countries, mental disease is found to be most frequent in the decade from twenty to thirty years. Taking the returns by the last census of the eastern district of Pennsylvania, and the number of patients admitted into the hospital under his care, as the elements of a calculation, Dr. Kirkbride arrives at the following conclusions as to the prevalence of insanity at the different periods of life:

From	10	to	15	years,	one case for	9127	persons.
"	10	"	20	"	" "	2160	"
"	15	"	20	"	" "	1202	"
"	20	"	30	"	" "	496	"
"	30	"	40	"	" "	626	"
"	40	"	50	"	" "	544	"
"	50	"	60	"	" "	1068	"
"	60	"	70	"	" "	2265	"
"	70	"	80	"	" "	2596	"

A course of lectures has been established in the institution, and has thus far been prosecuted with the most gratifying success. "On two evenings of every week an audience of about one hundred persons, of both sexes, may be seen listening with marked attention and the most perfect propriety to the different subjects which are brought to their notice." These lectures are intended for the benefit of the patients; but Dr. K. proposes to give a course the object of which shall be the improvement of attendants in the peculiar and arduous employment in which they are engaged. In this undertaking, he will undoubtedly receive the cordial approbation of every physician concerned in the management of an asylum —particularly so if, upon the basis of those lectures, there be erected the fabric of a "Manual for the Instruction of Attendants," which can be placed in the hands of all engaged in the business throughout the country. Thus shall Dr. K. become the Plato of the philanthropico-scientific enterprise to which his energies are devoted. And, apropos to this, he may make, if he will,—the board of managers thereunto consenting—as rural and beautiful a place of the farm attached to his institution as were the academic groves of the old philosopher of Athens.

2. The following statistics of the asylum at Utica are given in the report by Dr. Brigham:

	M.	F.	T.	Males.	Females.	Total.
Number of patients at the beginning of the year,				131	129	260
" " admitted during the year,				151	142	293
Whole number in the course of the year,				282	271	553
Discharged recovered,	76	59	135			
" improved,	39	39	78	139	129	268
" unimproved,	14	20	34			
Died,	10	11	21			
Remaining Nov. 30, 1845,				143	142	285

Causes of death.—Consumption 4; marasmus 5; diarrhœa 2; apoplexy 2; inflammation of brain 2; paralysis 2; suicide 1; exhaustion after high excitement 1; bronchitis 1; congestion of brain 1.

Of the 844 cases hitherto received into the asylum, 409 were of persons married, 392 single, and 43—12 men and 31 women—widowed.

The insanity of 313 commenced in the decade between 20 and 30 years; that of 217 between 30 and 40 years.

The asylum has been constantly full the year past, and much of the time crowded, while admission has been refused to a considerable number. Extensive additions to the buildings are in progress, consisting of "two wings running backwards from the centre of the wings of the present building, 240 feet by 38, with verandahs at each end, and a dining-room in the middle. When these are completed, the asylum will accommodate about 600 patients, 400 in separate rooms, and the remainder in 20 large dormitories."

The ornamental as well as the useful arts are flourishing in the domain of Dr. Brigham. "Recently," says he, "we had one of the patients, and a person in our employ, instructed in the art of taking daguerreotype likenesses, and they are now able to take likenesses inferior to none we have seen." "We some time since established what is known as a *whittling shop*, which has been very popular. Some articles carved here are not inferior to the handsomest Swiss specimens, of which, in fact, they are imitations." This plan is a good one, and it is to be hoped that the "shop" will so increase in usefulness and strength as to be able, ere long, to bear a somewhat more dignified name.

"Schools have been continued during the year, with the exception of a long vacation in summer. Our confidence in their utility has been increased by experience and observation. Once a month all the schools assemble in the chapel for a general examination in the various branches taught, and for declamation and the reading of compositions. If we are not greatly deceived, our schools and other mental exercises have been very beneficial to our patients; contributing largely to their contentment and cheerfulness, and giving to them a look of intelligence that they would not have, but for the adoption of the course we have mentioned."

The following remarks upon the importance of a general study of insanity, by physicians, are of sufficient value to justify their transfer to our columns.

"Many physicians in general practice are, we think, too apt to consider insanity a disease with which they have but little or nothing to do. Hence they often neglect to qualify themselves, by study and careful observation, to treat it properly. Their attention is not directed to it, the same as to other diseases, by lectures in medical schools, and they seldom purchase and read the best treatises on the subject. It is very true that, in most cases, when the disease becomes established, it cannot be well treated at home. Patients often become prejudiced against their nearest friends, and will not hearken to their advice or take any medicine. For these reasons, and to remove them from the exciting causes of their disease, as well as to have them treated properly in all respects, it is usually necessary to place them in an asylum.

"Still there are instances, though they are not common, when none of these objections, nor any other, exist to the patient remaining at home, and being treated by his ordinary physician. It is therefore very necessary that physicians in general practice should qualify themselves to prescribe in cases of insanity, as well as in other diseases.

"But, admitting that no such cases occur, it is still important for them to thus prepare themselves, in order to *prevent* insanity, and to arrest it in its incipient stage. We have no hesitation in saying, that if the physicians of the country were fully aware of their duty to the community, in this respect, and would exert themselves to prevent insanity, by timely advice, and to arrest it in its early stage, they would do those predisposed to insanity, and the insane themselves, an amount of good unequaled by that of the asylums of the country. They should understand and be able to recognize its earliest symptoms; for, as has been said, insanity often, and we believe we may say most generally, exists in a slight and scarcely perceptible degree for months before it is generally noticed. They should know how liable many are to this disease, from hereditary predisposition, from

previous attacks, long-continued menorrhagia or other diseases, from repelled eruptions and extreme nervous susceptibility, and be able to advise such, and warn them in time of impending danger. How many cases of puerperal insanity, or that insanity that comes on after childbirth, might be prevented by timely precautions!

"Physicians should study the various causes of mental diseases, and learn the danger of over-excitement of the nervous system, especially in early life, by too strong emotions, by prematurely tasking the intellectual powers, by the improper indulgence of the appetites and passions, and by the neglect of moral and religious education; and thus be able to advise parents and others whenever they are pursuing a course likely to lead to this disease.

"In this way, physicians would do great good in individual cases, and also do very much towards arresting those alarming *epidemic delusions* that occasionally prevail through the country; a lamentable instance of which is within the knowledge of all,—known by the name of 'Millerism,' or, the doctrine of the immediate destruction of the world. This has not only sent many to the grave, and rendered a vast number insane, but predisposed, we apprehend, a large number, by the excitement and terror it has produced, to nervous diseases, and to insanity hereafter.

"Physicians are often called upon to give their testimony in relation to the mental condition of individuals, and sometimes in cases where not only property, but *life* is at stake. In such cases, their responsibility is very great, and furnishes strong additional reasons for their applying themselves diligently to the study of mental diseases.

"The treatise of Esquirol on insanity has recently been translated and published in this country, in a cheap form. It is a valuable book, and worthy of a place in the library of every physician. The works of Prichard and Combe, on the same subject, have also been republished here, and are considered standard authorities."

3. During the past year improvements and additional buildings have been made to the Mt. Hope Institution. "Besides changing the entire character and appearance of the building," says Dr. Stokes, "these alterations place us in possession of comfortable accommodations sufficient for at least one hundred and thirty or forty patients."

	Males.	Females.	Total.
Number of patients at the commencement of the year,	15	31	46
" " admitted during the year,	58	42	100
Whole number in the course of the year,	73	73	146

	M.	F.	T.			
Discharged recovered,	44	26	70			
" improved,	4	7	11			
" unimproved,	2	3	5	51	37	88
Died,	1	1	2			

The large proportion of cures is explained by the fact that 39, or almost 50 per cent. of the patients discharged, were cases of mania-à-potu. It is to be regretted that Dr. Stokes has not reported these separately from those of insanity proper.

"A notion prevails very generally," says Dr. S., "that insanity consists exclusively in a disordered condition of the *mind*—that it is dependent on a perverted state of the *immaterial principle* of our nature, and that physical disorder has neither agency in producing, nor direct connection with, the mental derangement."

"This popular belief begets, of necessity, a want of confidence in the efficacy of medical and moral treatment. To this single delusion, we may venture to assert, are mainly attributable the numerous hopeless cases of derangement and dementia to be found in our asylums."

The visiting of the patients, by their friends, is discouraged, as being "generally unattended by any benefit, and, in the great majority of instances, positively injurious."

The following remarks, descriptive of the introduction of a patient into the asy-

lum, are in accordance with the true philosophy of the science of the treatment of the insane. "He is placed, if not too violently excited, in agreeable company, and allowed the fullest freedom of conversation, and the utmost cheerfulness consistent with a proper decorum. All the circumstances connected with his arrival and reception, are so regulated as to impress him favourably with regard to the institution. Even the reception-rooms are so located and arranged as to prevent the possibility of his being exposed to any sight or sound that would be likely to aggravate his distress and render the change insupportable to him. He is confided to a kind, conciliating and sympathizing sister, who, by exhibiting a personal interest in his condition, endeavours to gain his confidence and to reconcile him to his new home. He is encouraged to communicate freely his joys or his sorrows, to prefer unhesitatingly his requests, and to make known whatever interferes with his comfort and happiness. In a word, we endeavour to impress him favourably, from the first hour of his introduction into the house, with regard to his new situation, by divesting it entirely of everything of a repulsive and forbidding character, and by giving to every arrangement the appearance and effect of real home comfort."

4 The report of Dr. Bell, of the M'Lean Asylum, is unusually brief. The statistics for the year are as follows:

	Males.	Females.	Total.
In asylum at commencement of year	75	77	152
Admitted during the year	64	55	119
Whole number	139	132	271
Discharged and died	61	59	120
Remaining at the close of the year	78	73	151
Of the patients discharged, there were cured	39	35	74
" " " " much improved	2	4	6
" " " " improved	4	4	8
" " " " unimproved	7	11	18
" " " died	9	4	13

It appears that the average number of patients during the year has been greater than the apartments would conveniently accommodate.

A considerable portion of the report is devoted to the question of the use of mechanical restraints in the treatment of the insane. Dr. Bell says that during the past year, at the M'Lean Asylum, "a single patient only has been placed under any restraint of this kind, and that to guard against the hazard of self-destruction, which the ordinary means of watching by the presence of an attendant were not adequate to prevent. An epileptic young man has, at times, sat in Dr. Rush's *tranquilizing* chair (an arm-chair with a board across the front), to prevent sudden falls."

In regard to the use of restraining measures generally, Dr. B. thinks that the prevailing sentiment in Europe is, "that the dangers of occasional unfortunate results from omitting restraints to the insane hitherto thought to require them, are less, on the whole, than the objections to their use and the hazards of abuse, if employed by delegated authority, as must be the case in the extensive foreign hospitals, if they are used at all."

Having personally inspected many of the institutions abroad, during the past year, the author of this report does not, in the following remarks, write unadvisedly. "It is manifest that if we would hope to keep our institutions up to the recent level of those of England, France and Germany, it must be done by unremitting activity, by never resting satisfied with present attainments, and by keeping the community well advised of the absolute necessity of liberal means to meet this great end. No temporizing policy should conceal from it the fact that hospitals for the insane with insufficient, ultra-economical support, must have a constant tendency to degenerate into insane poor houses."

5. The extensive additions which were in progress at the time of the issuing of the "Twelfth Annual Report of the Massachusetts State Lunatic Hospital," were

completed in July last. In November they were already occupied by 130 patients, 70 males and 60 females, and, in his thirteenth report, Dr. Woodward says, that "at the rate of increase since the new apartments were in readiness, before they shall have been opened a year, every room will be occupied."

Dr. W. recommends the erection of still another building, detached from the others, and devoted to the most violent patients. The legislature of the state has appropriated 12,000 dollars for this purpose.

	Males.	Females.	Total.
Patients in the hospital at commencement of year	128	135	263
" admitted in the course of the year	164	129	293
Whole number	292	264	556
Discharged and died	100	96	196
Remaining at the close of the year	192	168	360
Of the patients discharged, there were cured	64	58	122
" " " " improved	11	14	25
" " " " incurable	10	15	25
" " " died	15	9	24
Whole number of patients since opening of hospital	1190	1116	2306
Of whom have been discharged recovered	501	537	1038
" died	99	76	175

Single, 1194; married, 894; widowers, 68; widows, 150=2306.

Diseases which have proved fatal.—Marasmus, 37; apoplexy and palsy, 20; epilepsy, 17; consumption, 16; disease of the heart, 13; suicide, 11; disease of the brain, 7; typhus fever, 6; hemorrhagia, 5; lung fever, 5; cholera morbus, 4; inflammation of the bowels, 4; dysenteric fever, 4; mortification of the limbs, 3; dropsy, 3; diarrhœa, 3; chronic dysentery, 3; erysipelas, 3; disease of the brain from intemperance, 2; bronchitis, 2; old age, gastric fever, land scurvy, congestive fever, concussion of the brain, disease of the bladder, and fright, 1 each. Total 175.

Dr. W. remarks that "there has been an uncommon number of persons affected with general palsy" under his care during the year. "Five have died with symptoms of apoplexy, and two with epilepsy."

The following quotations are made from that part of the report which is devoted to the causes of insanity:

"Tobacco is a powerful narcotic agent, and its use is very deleterious to the nervous system, producing tremors, vertigo, faintness, palpitation of the heart, and other serious diseases. That tobacco certainly produces insanity I am not able positively to observe; but that it produces a predisposition to it I am fully confident. Its influence upon the brain and nervous system generally, is hardly less obvious than that of alcohol, and, if used excessively, is equally injurious. If a young man uses tobacco while the system is greatly susceptible to its influence, he will not be likely to escape injurious effects that will be developed sooner or later, and both diminish the enjoyments of life and shorten its period."

"The secret vice, though doubtless a frequent cause of insanity, and of other severe and fatal diseases, far more than is generally supposed, is most operative in preventing recovery from insanity arising from this and other causes. It is extensively and alarmingly the result of an active propensity excited by disease and unrestrained by reason, moral influences or self-respect. Many cases of a favourable character progress towards recovery till this practice is commenced; then the patient becomes listless, is inclined to lie down or sit in a bent position, walks moderately, looks feeble and feels weak and miserable. His mind loses its energies, its scope is circumscribed more and more, till this beastly indulgence occupies all his thoughts, and the remnant of all the physical powers are all concentrated to this single effort of gross and debased animal nature. Thus, the groveling sensualist lives often a long life a degraded sufferer, without a manly thought or a moral feeling worthy of his nature or his destiny, and finally leaves

the world without the regret of his friends, a useless, burthensome, loathsome object of abhorrence and disgust."

From the valuable remarks upon the course of physical and mental discipline, and the other prophylactic measures which should be pursued with children having a hereditary predisposition to mental alienation, we make the subjoined extract:

"Strong propensities should generally be checked, not encouraged. The student should be taught to be active, and the active be restrained and made to study. If the nervous system is exceedingly susceptible, the muscular and circulating systems should be encouraged to activity, so as to balance this unequal tendency. If the child is disposed to be rough, passionate, and quarrelsome, he should be subjected to gentle influences, mild diet, and female society and instruction. Obedience to well-directed authority is essential to any suitable control and salutary management. Unrestrained passion, ungoverned appetite and unlimited indulgence are probably more frequently the causes of insanity, diseases of the heart and other severe nervous affections, than hereditary predisposition: they establish a predisposition where none existed, and may also prove an exciting cause of disease in the very cases in which they have given the tendency.

"There are many cases of children where the mind is too active for the body; intense application wears upon the physical powers and induces disease. In others, all the energies of the system are devoted to gratify animal wants and the lower propensities. Of all things, precocity should be discouraged; the very indication of it is a proof of incipient disease of the brain, which, if encouraged, will inevitably result in concentrating the elements of death upon the brain or some vital organ. The common impression that the young must be permitted to pursue their own inclinations in the business of life, is not always sound discretion. The character should be moulded by training, and the inclinations be changed when they tend to develop the causes of disease which hereditary propensity or acquired tendency has established.

"When we witness the great number of cases of insanity arising from improper influences, education, habits, unrestrained desires and propensities, we have little cause to seek for natural tendencies, but great reason to lament over evils now established in the character and the life, which an early, correct discipline would have averted."

The systematic, extensive and efficient scheme of moral treatment pursued at the Worcester Hospital, has been so fully illustrated in former notices of reports, that nothing further is required at this time. We would barely remark that Dr. Woodward is at fault when he asserts that "ten years ago not an institution (for the insane) in this country had devotional exercises or stated religious services on the Sabbath." At the Bloomingdale Asylum, New York, a chaplain has been constantly employed, and religious services have been regularly performed, on the Sabbath, ever since the year 1832.

Having had charge of the Worcester Hospital ever since it was opened; having, from year to year, suggested improvements and additions, and skillfully directed their execution until that institution is one of the most complete in the world; and having largely contributed to the science of insanity and the art of management of the insane, it appears that Dr. Woodward is about to resign his laborious and responsible office.

"I am admonished," says he, "by the lapse of thirteen years since I assumed the management of this institution, that I should resign the charge into other hands before age shall compel me to relinquish it, or the time shall arrive when I may not be able to judge of my own qualifications for the trust. I was here at the opening of the institution, received the first patient, and have since received more than twenty-three hundred, a greater number than were ever (before) in the care of one man in this country. I am now the senior superintendent, both by age and duration of office."

In his retirement to private life, where he will enjoy not only the *otium* which he requires, but most truly an *otium cum dignitate*, he will bear with him the high respect and the best wishes of a circle of acquaintance in extent but rarely equaled.

6. The appointment of Dr. Allen to the superintendence of the Lunatic Asylum at Lexington, was a most auspicious event for the insane in Kentucky. He will effect a regeneration of the institution which has been but too long delayed. Having placed his shoulder to the wheel, and turned it as far as individual effort is able, he now calls upon the legislative Hercules for assistance, and that assistance will undoubtedly be extended. Important alterations and additions to the buildings are projected, and when these shall have been completed the asylum will take a rank, which the want of them alone prevents it from now taking, among the best of the country.

	Males.	Females.	Total.
Patients at the asylum Jany. 1st, 1845	102	82	184
" admitted during the year	73	27	100
Whole number in the course of the year	175	109	284
Discharged and died " "	49	23	72
Remaining Dec. 31st, 1845	126	86	212
Of those discharged there were cured	22	6	28
" " " died	16	7	23

Since the opening of the asylum, in 1824, 1229 patients have been admitted, of whom 846 were males, and 393 females. Of the whole number discharged, 432—328 males and 104 females—were cured, and 439—282 males and 157 females—died. Thus, the deaths exceed the cures. This shows a bad state of things in the history of the asylum; but the picture is rendered still more gloomy, and these statistics are proved to be valueless, in a scientific point of view, by the fact, asserted in a previous report, that many of the cases discharged in former years are *inferred* to have been cured *from the want of any record of their having been discharged otherwise.*

A large part of the report before us is devoted to an exposition of the defects and the necessities of the asylum, and an appeal for aid in removing the former and supplying the latter. Dr. Allen has already introduced among his patients the various means for moral treatment generally adopted in our institutions for the insane.

7. The statistics of the Western Asylum of Virginia, as gleaned from Dr Stribling's report, are as follows:—

	Males.	Females.	Total.
Patients in asylum, Jan. 1st, 1845	97	47	144
" admitted in the course of the year	53	39	92
Whole number " " "	150	86	236
Discharged and died " "	36	19	55
Remaining Dec. 31st, 1845	114	67	181
Of patients discharged, there were cured	15	10	25
" " " died	14	7	21
Whole number admitted since July 1st, 1836	279	137	416
" discharged " "	182	78	260
Of whom were cured " "	100	48	148

Causes of death the past year.—Marasmus 9; epilepsy 5; derangement of digestive organs, supervening upon extreme general debility 4; dropsy 1; scurvy 1; phrenitis 1.

Dr. Stribling gives the following judicious advice to persons who may be about to take a patient to the asylum.

"Under no circumstances resort to deception; its effects upon the best interests of the patient are too often most pernicious, and, in many instances, affords cause for painful regret, both to patients and friends, long after the malady has been removed. Better, far better, use any degree of force which the occasion may

require, than by false representations or promises induce the patient to do that which persuasion had failed to accomplish. It rarely happens, when the individual is dealt with frankly, and especially when he perceives a determination to use coercion, that he does not yield; whereas, if he is decoyed from his home by false pretences, and is only undeceived (as is too frequently the case), when he finds himself within the enclosures of an asylum, the recollection that his best friends and nearest relations had dealt treacherously with him, embitters his prejudices against them. and destroys his confidence in his fellow man." Truth, unalloyed truth, every word of it.

During the past year, schools have been organized, and their results upon the patients are thus alluded to. "While some few have manifested a slightly growing interest in their scholastic exercises, the greater number have not seemed to enjoy or be benefited thereby, and thus far we do not feel that encouragement in regard to the experiment which some of our cotemporaries indulge."

A sewing society has been formed in the female department, the pecuniary profits of which are to be devoted to the construction of a chapel. "Many of the patients who could not be induced to use their needle, have engaged with alacrity in this enterprise."

Extensive additions to the buildings have been completed during the past year, and the managers recommend the purchase of another tract of land, to increase the farm.

8. The report of the asylum at Frankford, signed by Drs. Evans and Worthington, contains the following statistics:—

	Males.	Females.	Total.
Patients in asylum at beginning of year	29	29	58
" admitted in course of the year	14	12	26
Whole number " "	43	41	84
Discharged or died " "			34
Remaining at end of year "			50
Of those discharged, there were cured			15
" " " died			6

Causes of death.—Disease of heart 1; remittent fever 1; erysipelas 1; "marasmus and inflammation of bowels" 1; disease of kidneys 1; "inflammation of bowels" 1.

"During the fore part of the summer, there were several cases of severe diarrhœa and inflammation of the bowels, which proved fatal in the two cases mentioned. Later in the season, remittent fever prevailed to some extent amongst the patients and attendants, especially the latter, and, in some cases, in an aggravated form. It caused death in the case of the patient spoken of; the rest recovered. At the present time, there is no physical disorder amongst the inmates of the asylum, except that which gives rise to the derangement of their mental faculties."

"The school which was spoken of in the last year's report has been continued since, with the exception of a vacation during the warmest weather of summer. There are few who have attended the school for any length of time, who do not show, by their improved deportment, at all times, the benefit they have derived. There are three patients particularly, who, a year ago, were almost constantly under much excitement, so as to render them unfit for the society of the more quiet, who, by being taken to the school, during their more rational intervals, have, by little and little, been brought to show an interest in their books, to read them, and conduct themselves with propriety, not only while here, but also, generally, on other occasions." P. E.

ART. XIX.—*An Inquiry into the Physiological and Medicinal Properties of the Aconitum Napellus; to which are added observations on several other species of Aconitum.* By ALEXANDER FLEMING, M. D., President of the Royal Medical Society of Edinburgh. London, 1845: pp. 160. 8vo.

IN our last number, (p. 455,) so full an abstract of the results of Dr. Fleming's investigations as regards the physiological and therapeutic action of aconite was given, that any further notice of that portion of the work would be superfluous; but as the author differs essentially from most of the standard writers on the materia medica as to the relative powers of the various species of aconitum, it is a matter of some interest to inquire whether the opinion he has formed on this point is founded on just and sufficient data.

Dr. Fleming's experiments were instituted on twelve species and varieties of aconite, procured from the Botanic garden at Edinburgh, and of course in a cultivated state. After noticing that De Candolle had divided the genus into four sections, viz., *anthora*, *lycoctonum*, *cammarum*, and *napellus*, he states, that from carefully conducted trials he found "that the only species of aconitum whose activity is such as to render them eligible for medicinal purposes, are those belonging to the section *napellus*." Now as the *A. anthora*, *A. cammarum*, and *A. napellus*, are considered as officinal in the Paris Codex; the *A. paniculatum* by the Dublin College, the *A. napellus* and *A. paniculatum* in the U. S. Pharmacopœia; whilst the *A. napellus* alone is recognized by the London and Edinburgh Colleges, it is of some moment to ascertain whether this latter plant and its varieties should be employed to the exclusion of all others, or whether they may be indiscriminately employed.

As far as we have been able to investigate the subject, Dr. Fleming is upheld in the decision he has come to, by the analogous experiments of Geiger (*Handbuch. de Pharm.*), who states that the *A. neomontanum*, when cultivated, is comparatively inert, and also that the *A. napellus* is possessed of more active qualities, under all circumstances, than any of the other European species. It would appear, however, that Geiger, like Dr. Fleming, experimented with cultivated plants, which may have caused the variance of their results from those of other observers, as it is a well-known fact that cultivation has the effect, in most cases, of diminishing or destroying the active properties of vegetables; though it must be admitted that as regards the *A. napellus* such is not wholly the fact, and since it might be assumed that it was equally inoperative on the other species experimented upon by Fleming and Geiger.

On the other hand it is stated by Hoffman, Prevot, and others, that the *A. anthora* is as active as the *A. napellus*, and it is shown by Haller and Busch that the *A. cammarum* is in like manner to be used with much caution; the *A. paniculatum* forms part of the section *cammarum*, and is possessed of similar qualities, according to most writers, but was found by Drs. Fleming and Christison to be wholly inert.

There is but one way in which these discrepancies of opinion can be accounted for—that of the effect of cultivation, for although Geiger states that the *A. napellus* is not rendered milder by domestication, Ray, and others, observe that it loses much of its activity when transplanted into a garden; now as this species is the only one that flourishes in a wild state in England or Scotland, it is probable that it was less affected than those of foreign origin, growing with it in the Edinburgh botanic garden. This question is, therefore, by no means settled by Dr. Fleming's investigations, nor can it be, until a chemical examination of the various species in a natural or wild state is properly made, and the proportional quantity of aconitina contained in each is ascertained. As the matter now stands it would be better to recognize the *A. napellus* alone as officinal, for at present various species are indiscriminately collected and kept in the shops, and hence the value of each parcel can only be ascertained by the degree in which it possesses the sensible properties of the plant as noticed by Störck.

We cannot conclude these few observations without expressing the high opinion we entertain of the judicious manner in which the author has conducted his investigations, and has detailed the results; thus rendering his essay a most import-

ant contribution to our knowledge of medical agents, and forming an excellent model for future writers on the materia medica. R. E. G.

ART. XX.—*Fevers; their Diagnosis, Pathology, and Treatment. Prepared and edited, with large additions, from the Essays on Fever in Tweedie's Library of Practical Medicine.* By MEREDITH CLYMER, M. D., &c. &c. 8vo: pp. 604. Philadelphia, 1846. Lea & Blanchard.

THE present volume is made up of the Essays on Fever which appeared in Tweedie's Library of Practical Medicine, with copious additions, in the text, and an entire chapter on typhoid fever, by the American editor. Thus composed, the work presents a very full and fair exposition of the received doctrines concerning the pathology and treatment of fevers. We should, it is true, have preferred an original treatise on this important class of diseases, but in the absence of this, we are willing to receive as a substitute, and it must be confessed a very able one, the volume before us.

The essays composing the body of the work have been for some time before the profession,—and a decidedly favourable opinion of their merit, has been very unanimously expressed;—it will, therefore, be unnecessary for us at this time to enter into a critical examination of them. They are all unquestionably, very able productions. The delineations they present of the several forms of fever, as well as the exposition given in them of their etiology, are, in general, full and accurate, while the pathological and therapeutical views inculcated, if not always incontrovertible, are at least such as have received the sanction of the greater proportion of the more authoritative writers of the present day.

The most exceptionable essay contained in the volume is that, perhaps, of Dr. Shapter on yellow fever. It cannot, with strict propriety, be said to give either a clear or accurate description of that all-important disease; we certainly do not recognize in it a correct portraiture of the fever as it has heretofore appeared epidemically, or still continues to occur as an endemic, in different portions of the United States. We very much doubt, indeed, whether any one would be able to identify the disease, should he happen to meet with a case, from a recollection of the confused description given of it in the essay referred to. The brief delineations added to the essay by Dr. Clymer, from one or two American physicians, are far more faithful to truth, and convey a much better picture of the disease as it ordinarily presents itself, than the more elaborate account given in the essay of Dr. Shapter,—which has failed to afford any very accurate or useful delineation of the usual characters and course of yellow fever, as it presents itself to the American physician, evidently from the want of a familiarity with the leading characteristics of that form of disease to which the term yellow fever should invariably be restricted.

We regret that Dr. Clymer has not added a chapter on this disease, drawn from the ample material furnished in the recorded observations of the practitioners of our own country.

The additions that have been made to the several essays by Dr. Clymer are appropriate and judicious, and, while they form a very considerable proportion, augment materially the value of the work, by supplying the more important of these observations and facts,—doctrinal as well as practical—in reference to the leading forms of fever, that have been developed since the essays contained in the volume before us first appeared.

The chapter on typhoid fever by Dr. Clymer presents a condensed but very able and accurate delineation of the semeiology, pathological characters and usual course of this very important disease.

To the library of both student and practitioner the work will, upon the whole, be found a valuable addition. D. F. C.

ART. XXI.—*The Practice of Surgery.* By JAMES MILLER, F. R. S. E., F. R. C. S. E., Author of "The Principles of Surgery," &c. &c. 8vo: pp. 496. Philadelphia, 1846. Lea & Blanchard.

MR. MILLER is the author of a work on the "Principles of Surgery," which has been lately published, and his present volume on "The Practice,"—which is intended as a companion to that work,—in which those principles are applied to the treatment of disease and injury, renders the two volumes a complete text-book of Surgery.

Though less attractive than either of the other late works on practical surgery which have been put forward by his countrymen, Fergusson and Liston, it nevertheless will be found to contain a large amount of well-arranged matter, and to be well calculated to assist the student.

We rejoice very much to find Mr. Miller, at the outset of his book, calling attention to the serious error so often committed by students, of imagining that operations constitute the greatest and most important part of practical surgery. "The student is very apt to be led away by the more garnish and imposing parts of his profession, to the neglect of that which is in truth by much the more valuable; and he may also forget that, in after life, he will be only occasionally called upon to perform the greater operations, while daily he must exert his general knowledge and skill, as well as his minor handicraft, to avert the necessity for use of the knife, and other maiming weapons. In the case of a diseased joint, for example, placed under his care, he is not at once to feel the edge of his knife, and contemplate amputation or resection. Such procedure is the ultimatum, not the initiative of his art. Local depletion, rest of the part, counter irritation duly timed and conducted, pressure, splints, attention to the general health, these—to some, apparently a simpler, but in truth a far higher adaptation of knowledge—conspire, and often with success, not to mutilate the frame and endanger life, but to save both life and limb, at but little cost of either pain or danger. Again, in the torturing complaint of stone in the bladder, it is doubtless a great matter to be able by a speedy operation—severe and perilous to life though it be—to free the patient from his misery. And the accomplished surgeon must be at all times competent to undertake fearlessly this hazardous procedure. But it is surely a higher exercise of a better skill, and both the means and the result will prove infinitely more creditable and satisfactory, if, by the internal use of simple remedies, and suitable attention to hygiene, the disease shall be in its very origin frustrated, pain and danger dispelled, and health and comfort restored—all without the infliction of a scratch, or the loss of one drop of blood. In the case of injury, too, the paramount importance of general treatment will be found equally to obtain. The surgeon is ready, at a moment's warning, to amputate skillfully a crushed limb, which has obviously no chance of retaining its vitality, and which, if not speedily removed, must inevitably peril the whole frame's existence; and when, by such severe operations, he succeeds in averting the greater calamity, he has most just ground for self-gratulation, and may truly say that a good thing has been done by his art for suffering humanity. But when, in the case of an injury a shade less severe, there is a doubt whether or not the limb may be enabled to resist the threatened gangrene, when he hesitates not to give to his patient the benefit of that doubt; when, by great patience, care and skill, he arranges the mangled fragments in their proper place, retains them so by suitable apparatus, affording due support, and yet permitting no undue pressure, regulating the play of the general circulation, controlling the efforts of the *vis vitæ*—in short, averting both local and general disaster, and bringing the healthful action of reparation to complete, though it may be slowly, its valued process of cure; and when ultimately a thorough and permanent success crowns such patient and anxious labours:—surely the cause for self-gratulation is increased a hundred fold; the surgeon may well say that a far better thing has been done by his art: and the discerning public will not fail to award to him a higher and a truer meed of praise.

"The advance of surgery will ever be found characterized by a corresponding decrease in its operations, both in amount and in severity. The true object of our mission is not to cut, but to cure."

If the occupants of professional chairs generally were to make the effort, much might be done to check this great and increasing evil, though this we cannot look for so long as the number and variety of operations performed at the miscalled "Cliniques" of our schools are set out in taking array in their annual prospectuses, or urged as inducements to bring students to their halls. G. W. N.

ART. XXII.—*Elements of Surgery.* By ROBERT LISTON, Surgeon to the North London Hospital, Professor of Clinical Surgery, &c. &c. &c. Fourth American, from the last London edition, with copious notes and additions, by SAMUEL D. GROSS, M. D., Prof. of Surgery in the Medical Institute of Louisville, Surgeon to the Louisville Marine Hospital, &c. &c. Illustrated with numerous engravings. Philadelphia. Ed. Barrington and Geo. D. Haswell. 1846: 8vo. pp. 664.

Lectures on the Operations of Surgery, and on Diseases and Accidents requiring Operations. By ROBERT LISTON, Esq., F. R. S. Senior Surgeon to the University College Hospital, and Professor of Surgery in the College. With numerous additions by THOMAS D. MUTTER, M. D., Professor of Surgery in Jefferson Medical College, Philadelphia; Fellow of the Royal Medical and Chirurgical Society of London; Foreign Honorary and Corresponding Member of the Provincial Medical Association of Great Britain; Corresponding Member of the National Institute at Washington; Fellow of the College of Physicians, Philadelphia; Member of the Academy of Natural Sciences, Philadelphia; Corresponding Member of the New York Medical Society; Honorary Member of the Medical Societies of Philadelphia, of Virginia, &c. &c. &c. Philadelphia. Lea & Blanchard, 1846. 8vo. pp. 565.

MR. LISTON is well known as a bold and skilful operator, and as being independent in his opinions and fearless in the expression of them. His writings have a freshness and vigour, and are so copiously illustrated by his own achievements in operative surgery, that they are well calculated to interest and captivate the surgical student.

His Elements of Surgery have been for some time before the public, and the fact of their having gone through two editions in England, and four in this country, sufficiently attests the favour they have met with. The additions to this work by Dr. Gross are numerous and interesting, and increase its usefulness and completeness.

Mr. Liston's Lectures on the Operations of Surgery are now first published in a volume, and will be unquestionably as popular as his other works. It is very copiously illustrated with wood cuts, and the editor, Dr. Mütter, has made very large additions, the matter he has introduced nearly equaling, indeed, in extent, the author's.

We cannot allow so suitable an opportunity to pass without raising our voice against the too frequent recourse to the knife which characterizes much of the surgery of the day, an evil which we fear the example of Mr. Liston is calculated to encourage, and which, we regret to have to add, the precepts of his editor, Dr. Mutter, are in no degree calculated to restrain.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Life: Capacity of Organizing.*—Whatever doubt might still remain in the minds of some, whether Mr. Hunter maintained the truth in his doctrine that the blood could be organized, that is, that the whole substance of a portion of blood, being at rest either within or without a vessel, may develop itself into tissue and become vascular, and grow and nourish itself, must be satisfied by the observations of Dr. Zwicky* on the metamorphoses of the thrombus, or clot of blood which forms in a vessel above a part at which it is tied. For observations which, like these, stand on the boundary between physiology and pathology, no more space can be given than to state briefly the result; which is, that, to all microscopic appearance, the organization of the fibrin in an inflammatory condition, and of that in a clot of blood is in all essential respects the same process, the presence of the blood-corpuscles in the latter having no farther influence on the process than that of somewhat retarding it. The whole process of the metamorphosis of the fibrin of the blood into fibro-cellular tissue, and of the formation of vessels in it is satisfactorily traced; and thus the only additional evidence which was needed, is supplied for the establishment of another of the long-doubted Hunterian doctrines.—*Paget's Report* in *Brit. and For. Med. Rev.*, April 1846.

2. *Anatomy of the Middle Thyroid and Crico-Thyroid Arteries.* (*Oesterreich. Medic. Jahrbucher*, Mai u Juni, 1845.)—Dr. Gruber in an excellent essay on the anatomy of the parts concerned in laryngotomy and tracheotomy, has treated especially of the middle thyroid (A. thyroidea ima. seu Neubaueri) and the crico-thyroid arteries. The former occurs in about ten per cent. of the bodies examined, arising in general from the innominata, more rarely from the arch of the aorta or the common carotid. more rarely still from the inferior thyroid or thyroid axis, and most rarely from the internal mammary. It probably never arises from the left carotid: when it appears to do so the artery thus arising should be called a second inferior thyroid. Its diameter varies from half a line to two lines and a half; in two cases with healthy thyroid glands, its trunk measured five lines. It is more frequently on the right than on the left side; and once only in ten cases was double. It may proceed vertically up the front of the trachea to the isthmus or either lobe of the thyroid gland, or it may pass obliquely across to the trachea, even going from its right side to the left lobe of the gland.

In regard to the crico-thyroid artery, Dr. Gruber notices especially that arrangement in which it is very large on one side, having a diameter of from three-quarters of a line to two lines. This is most often observed when there is a middle lobe to the thyroid gland, but the large artery is not always on the same side as the middle lobe. Such an artery occurs about once in every four persons,

* Die Metamorphose des Thrombus; von Dr. H. Zwicky. Zurich, 1845. 4to.

and is more frequent on the right than on the left side. Its place may be taken by the thyroid branch of the right superior thyroid artery. The large artery in most cases bends down at a right angle in front of the crico-thyroid membrane, to reach the isthmus of the thyroid gland, and gives off at its bend a small branch which crosses the membrane. More rarely the trunk of the artery crosses the crico-thyroid membrane and reaches the opposite side. It gives branches to the larynx through the crico-thyroid membrane, to the middle lobe of the thyroid gland, to the lobe of its own side, and when it crosses over, to that of the other side also, and very often to the isthmus of the gland.—*Ibid.*

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3. *New Muscle of the Posterior Nares and Palate.* (*Muller's Archiv.*, 1846, Heft 5, p. 452.)—Dr. Tourtual has detected a new muscle of the posterior nares and palate, and found it regularly in six men as well as in dogs, cats and sheep. It lies between the mucous membrane and the internal pterygoid plate, before the Eustachian tube, and behind the inferior meatus of the nose. Its upper edge or origin extends from below the palatine process of the turbinated bone backwards and upwards, towards the upper margin of the Eustachian tube; in this line the muscle arises from the vertical plate of the palate bone, and from the internal pterygoid plate of the sphenoid, reaching sometimes to the cartilage of the Eustachian tube; hence its fibres straight descend, and are augmented by others arising from the several parts near which they pass; and going just behind the hard palate, they enter the anterior and outer part of the soft palate, in which they expand on an aponeurosis, mingling with that of the circumflexus palati. The posterior margin of the muscle is usually confused with the anterior fibres of the levator palati, and is covered by a short fold of mucous membrane, which forms the anterior margin of the orifice of the Eustachian tube.

The discoverer proposes for this muscle the name of pterygo-palatine, or levator palati mollis anterior seu minor.* It receives a (probably sensitive) filament from the internal palatine branch of the fifth; and has, probably, also motor fibres from the glosso-pharyngeal. The function of the pair of muscles is probably that of elevating and of slightly stretching transversely the *anterior* and lateral parts of the soft palate, for which the larger and posterior levatores palati do not provide. In this tension of the palate they probably prevent the anterior fibres of the circumflexi from drawing the anterior part of the palate backwards. They probably are important in sounding the palatine consonants, and their posterior portions may assist the greater levatores palati in narrowing the Eustachian orifices.—*Ibid.*

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4. *Structure of the Lungs.*—Some interesting points in the anatomy of the lungs are determined by the investigations of Mr. Rainey.† The air-passages he divides into the bronchial tubes and the intercellular passages continued from them, taking for the line of demarkation between them the parts at which the mucous membrane and ciliary epithelium of the bronchi terminate. These terminate abruptly in bronchi of from $\frac{1}{50}$ to $\frac{1}{30}$ of an inch in diameter; the mucous membrane retaining to this boundary its longitudinally and circularly fibrous character, and its pale colour. Beyond the boundary, the tubular form of the air-passages continued from the bronchi is for some distance retained, but it is more and more lost as the passages branch and approach the surface of a lobule, and as the number of air-cells which open into them continually increases. Thus, at last, each minute division of the air-passages becomes quite irregular in its form, air-cells opening into every part of it and almost constituting its walls, till itself ends, without dilatation, in an air-cell. Beyond the boundary at which the bronchial mucous membrane abruptly terminates the walls of the air passages are formed only by a membrane similar to that which walls in the air-cells; and they have no epithelium. Those air-cells are smallest and most vascular which are situated nearest to the centre of the lung; their size increases and their vascularity diminishes at

* This name had better be used; for the former has been already applied to what is probably a part of this muscle, arising from the hamular process of the pterygoid plate, and mingled with fibres of the pterygo-pharyngeus. See Haller, Elem. Physiol., t. vi. p. 80, note *t*.

† Medico-Chirurgical Transactions, vol. xxviii. p. 581, 1845.

the parts nearer the circumference—in adaptation, probably, to the larger and more ready supply of fresh air to the former parts. Those cells which open directly into the bronchial tubes and intercellular passages open into them by large circular apertures; they are themselves similarly opened into by other cells, which again are similarly opened into by others; forming thus, for each opening into a tube or passage, a series of communicating cells; each series reaching usually from the passage to the surface of the lobule. The cells which are placed in the angles of the branching of an intercellular passage probably open into both the branches, as well as into one another. The walls of the air-cells, on which the capillaries are placed, are formed by thin and transparent but fibrous membrane, which in the formation of the successive communicating cells is folded, or as if constricted, so as to form a definite sharp-edged circular opening of communication between each two, and between the first of the series and the passage into which it opens. In the reptiles the corresponding folds bordering the sacculi of their lungs inclose each a double or folded layer of capillary plexus; in the mammal's lung each such fold incloses a single layer of capillaries, so that both sides of all these capillaries are exposed to the air in the adjacent cells. And this plan of arrangement and structure of the air-cells exists in the mature mammalian fœtus just as it does in after life.—*Ibid.*

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5. *On the Supra-renal, Thymus and Thyroid Bodies.*—In a paper on this subject communicated by JOHN GOODSIR, Esq., to the Royal Society, Jan. 22, 1846, the author enters on the development of the theory he advanced two years ago, with regard to the origin and nature of the supra-renal, thymus and thyroid bodies, and the correctness of which, with certain modifications, he has been enabled to confirm by subsequent observation and reflection. His hypothesis was, that the three organs in question, are the remains of the *blasto-derma;* the thyroid being the development of a portion of the original cellular substance of the germinal membrane grouped around the two branches of the omphalo-mesenteric vein; the supra-renal capsules, the developments of other portions grouped around the omphalo-mesenteric arteries; and the thymus, the development of the intermediate portion of the membrane arranged along the sides of the embryonic visceral cavity. He has since ascertained, however, that the thyroid body derives its origin in a portion of the included *membrana intermedia* remaining in connection with anastomosing vessels between the first and second aortic arches, or carotid and subclavian vessels. He considers these organs as essentially similar in their structure, as well as in their origin, in continuous portions of the blasto-derma situated along each side of the spine, and extending from the Wolfian bodies to the base of the cranium: the development of the supra-renal capsules having relation to the omphalo-mesenteric vessels the thymus, to the jugular and cardinal veins and ductus Cuvieri; and the thyroid gland, to the anastomosing branches of the first and second aortic arches. The functions of these organs he regards as being analogous to those of the blasto-derma; with this difference, however, that as the blasto-derma not only elaborates nourishment for the embryo, but absorbs it also from without, that is, from the yolk,—the developed organs only elaborate the matter which has already been absorbed from other parts, and is now circulating in the vessels of the more perfect individual.—*Proceedings of the Royal Society.*

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6. *Preservation of Specimens of Morbid Anatomy.* (*Med Times*, March 21, 1846.)—A very interesting communication on this subject was made to the Parisian Medical Society, March 11th last, by M. PIGNE, Curator of the Dupuytren Museum.

The subject, M. P. remarked, may be divided into two parts—the first referring more specially to the preparation, the second to the preservation of morbid specimens. One of the most important points of the former is the injection of coloured fluids into the vessels of the specimen it is desirable to preserve. The colouring matter should be very soluble, or at least very divisible. Lampblack, acetate of copper, carbonate of lead, and bisulphuret of mercury, are the substances M. Pigné employs for the productions of black, green, white, or red colours: for blue, Prussian blue and indigo are equally eligible, and chromate of lead should be

used for yellow. Hématine (extracted from the hématoxylum Cambog), is considered by the essayist a remarkably valuable substance, inasmuch as it will according to the proportion in which it is added to the vehicle (from one to seven per cent.), yield hues varying from the lightest shade of purple to the deepest black. As a vehicle, M. Pigné recommends, for common injections, mutton-suet with the addition of a trifling proportion of yellow wax and essential oil of turpentine. But when it is an object to make an injection into very minute vessels, the essential oil must be used pure, and injected cold. This substance becomes saponified in the capillaries, and acquires a stone-like hardness, which insures to the specimen an almost everlasting duration. M. Pigné cannot insist sufficiently on the necessity of injecting the liquid slowly, no less than four hours being necessary to inject a liver, and two hours and a half for a lung; if the fluid were pressed in with greater speed, laceration of the fine texture of the small vessels would inevitably occur. Gelatine and water in equal volumes form also an excellent solvent for the colouring matter of an injection. The gelatine must, of course, be melted in a water bath, at 97—104° Fahr., and the injection should be made under water into the heated preparation; when injected with gelatine the specimen should be dried, as all the fluids in which specimens are usually preserved are solvents of gelatine. But when the preparation is to be subsequently kept in spirit, instead of gelatine, the following composition should be used:—Suet, twenty parts; white wax, one or two; resin, Venice turpentine, five to seven. The mixture is to be melted in a water bath, and injected under water, after the addition of the colouring matter. When the part has been injected, it is often necessary to dissect it very carefully, and in order to prevent alteration of the preparation, M. Pigné advises to keep it in fluid, composed of water one quart, and creosote twelve drops. This fluid will preserve it unimpaired for six weeks, or two months at the least, without change of shape or colour. For the preservation of the iully prepared specimens, many fluids have been recommended, and during a period of five years, M. Pigné has successively tried no less than 200. 1. Alcohol is the substance most generally employed, and it should weigh from eighteen to twenty-two by Gay-Lussac's areometer. Notwithstanding its reputation, alcohol is open to several great objections; it discolours the specimen, and alters its size and shape by dissolving its greasy elements, a portion of which floats in the ifquid, and renders it opaque and putrid, thus necessitating its renewal at considerable expense every two years at furthest. 2. M. Gannal's fluid (alum, and probably corrosive sublimate, are its constituents), blunts the instruments of dissection, and changes the colour of the preparation. 3. M. Sucquet's fluids (chloride of zinc and sulphate of soda,) excellent for the purposes of dissection, cannot be used for the preservation of specimens, the colour of which they destroy, and artificial colouring never giving a satisfactory idea of the natural state of things. 4. Creosote, mixed with water in all proportions, has been tried by M. Pigné, whose attention was first directed to the subject by reading in M. Gannal's preface that creosote hastened decomposition. In M. Pigné's opinion it is the very best of all preserving fluids. Water saturated with creosote, and filtered, retains about twelve drops to a quart, and preserves indefinitely the natural shape, size, and colour of the specimens, although it does not answer so well as an injection. The preservation of the *liquid products of disease* is a subject to which M. Pigné has given much attention, as he deems it of immense importance. Four ounces of pus, extracted by Professor Roux from an abscess, in the year 1843, and preserved by the addition of *one drop* of creosote, were exhibited to the meeting, and not only the fluid was not in the least degree decomposed, but M. Pigné asserted that the globules still preserved, under the microscope, their natural characters. Scrofulous pus, now preserved two years, was shown to the meeting, and certainly presented no sign of putridity. Also urine collected three years and a half ago, and preserved by one drop of pure creosote. 5. Some morbid alterations, such as pulmonary caverns, and scrofulous tumours in various organs, are constantly destroyed by immersion in alcohol. M. Pigné has discovered that spirit will no longer destroy the preparations, if they have been previously allowed to macerate forty-eight hours in a fluid formerly recommended by Mr. Richard Owen, but which that gentleman has since abandoned. Mr. Owen's liquid is composed of the mixture, at 50° Fahr., of three saturated

solutions of common salt, alum, and corrosive sublimate. This fluid preserves and hardens the preparations, but injures materially the instruments of dissection, and is so powerful as even to attack the watch, guard, pins, or other ornaments which the anatomist may wear on his person. The substances employed are, however, very cheap, and by hardening the specimen, leave to morbid cavities their natural shape, if they have been distended with air during the forty-eight hours of immersion. The glass vases used by M. Pigné, and made expressly by his direction for the purpose of receivir g the specimens, are of cylindrical shape, well calculated to prevent any waste of space. The preparations should not be fixed on corks or wooden plates; the latter corrugate in spirit; the former, by losing their tannin and colouring matter, alter the alcohol and render it opaque. In the Paris museums a simple and ingenious method of suspension is employed, and its invention is due to M. Maissiat. The plan consists in attaching the specimen with silk strings, to thin glass sticks bent at right angles, fitting exactly the receiver, and forming invisible supporters. The vases are there closed by the superposition of a flat glass-lid, an advantageous substitute for the heavy and expensive stoppers which would be requisite if the shape of the receivers was different. The lid is fixed on the vase by a very adhesive cement consisting of slacked lime, finely powdered and mixed with a little albumen. This substance is applied with a brush, and is dry in the space of a few minutes; but if at any further period it is advisable to open the vase, the lid must be broken In order to obviate this consequence, M. Maissiat recommends the use of melted caoutchouc, to which is added a small proportion of vermilion or litharge, to give it consistency. This substance is applied with the hand on the edge of the vase, and of the lid, and simple pressure, assisted by a slight rotatory movement, closes the receiver in a manner at once solid, and which permits the vase to be opened at will, without any effort. Lastly, in order to render the preparation more visible, and to prevent the refraction of the rays of light through the fluid, a circumstance which often prevents the specimen from being distinct, M. Maissiat varnishes the top and the back of the receiver. All these precautions relative to the injections, and to the preservation of morbid specimens, said M. Pigné, in concluding this communication, although they may appear unimportant, insure in reality the success of the preparation, and the permanent beauty of the results. Besides, they give neatness to private and public museums, and must serve materially the cause of true science, by rendering more attractive the study of morbid anatomy.

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7. *Bifurcation of the Aorta.* By Dr. Weisse.—A boy fourteen years of age died with the usual symptoms of heart disease, and acute pericarditis was discovered on dissection. The aorta shortly after its origin from the left ventricle divided into two branches, which after a short course again united, forming a dilated sac at the point of reunion. The left carotid and subclavian sprang from the left branch of the aorta, from the right branch there arose only the right subclavian, the right carotid springing from the divarication of the aorta.—*Brit. and For. Med. Rev.*, April, 1846, from *St. Petersburg Med. Trans.*, vol. vi.

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8. *Case of Inverted Displacement of the Bladder.*—The fourteenth volume of the *Transactions of the Provincial Medical and Surgical Association* contains a very curious example of this malformation. The subject of it was a child between two and three years of age. There was a fleshy-looking tumour projecting out between the labia pudendi: it was considered a vascular excrescence by the medical attendant; but, before he proceeded to put a ligature round it, he fortunately asked Mr. Crosse to see it. This gentleman was puzzled at first what to make of the case; but he saw quite enough to dissuade from the intended operation. The following is the description of the appearances:—"Towards the posterior part of the tumour, and on its sacral aspect, there was an aperture, which was conjectured to be the entrance into the displaced urethra. A very small female catheter easily entered this aperture, and passed along a channel a little to the left side of the median line: urine distilled in drops through the catheter, but there was not a gush, although the instrument had entered so far that we concluded it must have reached the cavity of the bladder. Besides what thus oozed through the catheter, slightly

tinged with blood, there was an oozing of urine from another source, which was not explained until a second and more strict examination, instituted a few days afterwards.

He then "found, concealed in a fold of the tumour, and near to the posterior junction of the labia, two orifices not far asunder, from which the urine oozed, and which were evidently the vesical terminations of the ureters. On pressing the tumour firmly, as if to reduce it like a hernia, I found it yield and pass gradually behind the symphysis pubis, and within the labia; and under a continuance of the taxis it all retired, leaving the external parts in their proper shape and position. A passage remained, through which the tumour on retiring had taken its course, which was actually the dilated urethra, into which I *could* and *did* introduce my little finger, until it fairly entered the cavity of the replaced bladder; for it now became clearly demonstrated, that the vascular red tumour, externally presenting itself as first described, was the urinary bladder in its entire thickness, including its mucous, muscular, and peritoneal coats, prolapsed through the dilated urethra, and at the same time inverted or turned inside out."

The previous history of this case was imperfect. All that could be made out was, that the tumour had existed for a considerable time, and been always attended with a *stillicidium urinæ*. Mr. Crosse has lately learned that his patient is still living, and is now a healthy young woman, 18 years of age; but that unfortunately the incontinence of urine continues, although there has never been any relapse of the vesical inversion.

Dr. Murphy has related, in the Medical Gazette for 1833, a case very similar to the preceding one: it occurred in a female child four years old. At first, it was mistaken for a *prolapsus ani;* a more attentive examination of the parts disclosed the real nature of the displacement.

Mr. Crosse remarks that "when from difficult labour, the bladder and contiguous part of the vagina slough away, creating a free communication between these two cavities, a real inversion of the bladder may take place through this abnormal aperture, of which I have known several instances; and in one the inversion prolapsed so far as to escape at the external labia, and presented on its surface the terminations of the ureters, from which the urine was observed to dribble continually; when the injury is to this extent, the afflicting symptoms can only be palliated, and have not, to my knowledge, admitted of cure."—*Med. Chirurg. Review*, April, 1846.

ORGANIC CHEMISTRY.

9. *On the Formation and Discrimination of Urinary Calculi.*—Prof. Liebig, in his lectures on Organic Chemistry, published in the *Lancet*, (Aug. 30, 1845,) has the following excellent remarks on this subject:

"Uric acid is always present, to a small amount, in the normal urine of man. It is partly to its presence that this fluid owes its well-known acid reaction. In unhealthy conditions of the organism, the proportion of uric acid in the urine is greatly augmented, and accumulating in the bladder, it gives rise to the formation of stones, or calculi. But, in addition to uric acid, there are other matters which enter into the composition, or altogether constitute those concretions which claim our attention, and amongst these there are two organic substances particularly deserving of a minute consideration, as an appendix to our exposition of the series of bodies formed from uric acid—namely, Cystic Oxide, and Zanthic Oxide, or Cystine and Zanthine. I shall, moreover, take the opportunity of this lecture to treat of the subject generally, and include those urinary concretions which consist of inorganic matters.

"Under the names urinary concretions, stones, or calculi, (for these terms are synonymous,) are comprised all substances devoid of organization found detached in the urinary bladder. Similar concretions, indeed, are also formed in other animal fluids, as the bile and the saliva. Wherever they are produced, they may arise from very various causes.

"Most of the fluids of the animal body, but more especially those destined to

be evacuated from the system, hold in solution certain compounds, which are kept dissolved only by very weak affinities, and therefore, as soon as the fluid has left the body, they become deposited in a solid form. When, therefore, these fluids are retained longer than is ordinarily the case, or when, in consequence of unhealthy conditions of the organism, these matters which in the normal state, exist only in minute quantities, are produced in larger proportions, they deposit themselves in a solid form, and the process being frequently repeated, concretions are formed, and, as we are now contemplating especially the case of the urine, are deposited in the bladder. In this manner those calculi are generated which consist of uric acid and the urates.

"Calculi may, however, be formed, when neither the proportionate amount of solid matter in solution is increased, nor the fluid retained a longer time than natural in the bladder, because the urine may, from various causes, undergo such a change in its constitution, that those conditions essential to the solubility of certain compounds may be absent, and consequently these compounds necessarily become precipitated.

"Phosphate of lime is perfectly insoluble in pure water; its solubility in urine depends upon the existence of free acid in that fluid. If, from any cause, the urine becomes alkaline, as, for instance, when organic salts with alkaline bases are taken into the stomach, which, as is well known, are converted into carbonates during their passage through the organism, then the conditions essential to the solubility of phosphate of lime are removed, and this salt is precipitated. All calculi consisting of phosphate of lime are produced in this manner.

"The calculi containing ammonio-magnesian phosphate are also produced in a manner precisely analogous to this. In many animal fluids, particularly the urine, phosphate of magnesia is found in solution. Normal urine contains no ammonia, but when, from any cause, ammonia is generated, the phosphate of magnesia no longer remains in solution, but is precipitated as ammonio-phosphate of magnesia.

"Besides the foregoing, there is another cause of the formation of urinary concretions. In diseased conditions of the system, peculiar compounds are not unfrequently formed which are never produced in the healthy organism, and being perfectly insoluble in urine, are immediately deposited in a solid form from that fluid. In this manner oxalate of lime calculi are formed, and those concretions of organic matter termed cystic oxide and zanthic oxide.

"But beyond these chemical causes of calculi, certain mechanical conditions have almost always more or less influence upon their formation in the urinary bladder. When any of these states which I have enumerated exist, and, in consequence, deposits occur of uric acid, urates, insoluble phosphates, oxalate of lime, &c., in small quantities, it does not necessarily happen that calculi are formed, but, in most cases, the urine flowing off, carries with it through the urethra the sediments suspended in it, or already deposited. When, however, the bladder contains mucus, these sediments are apt to adhere to it, and become united into masses. Very often a foreign body, which has accidentally got into the bladder, forms the nucleus upon which these sediments are deposited, and to which they adhere, the irritation they occasion on the internal surface of the bladder induces the secretion of mucus in which the urinary deposits accumulate, and they thus become the direct cause of the formation of calculi.

"The calculi formed in the human bladder differ, therefore, in their composition; and whilst there is a great variety, the following may be taken as the characteristic of most of them:—

1° calculi, composed of *uric acid.*
2° " " *urate of ammonia.*
3° " " *oxalate of lime.*
4° " " *phosphate of lime.*
5° " " *ammonia-phosphate of magnesia.*
6° " " *a mixture of phosphate of lime and ammonia-phosphate of magnesia.*
7° " " *cystic oxide* or *cystine.*
8° " " *zanthic oxide* or *zanthine.*

"*Uric Acid Calculi.*—The calculi which are most frequently found in the bladder

are those composed chiefly of uric acid. They are generally of a reddish-brown or yellowish colour, which is derived from the colouring matter of the urine. Their surface is sometimes smooth, sometimes rough; their size, of course, very variable. The fracture of these calculi sometimes presents a crystaline texture; at others, it is smooth, and often they are made up of concentric layers. They are rather hard, so that they may be just scraped with a knife. Calculi are never composed of perfectly pure uric acid; they always contain hardened mucus, which binds the uric acid together, and small quantities of alkaline urates, urate of lime, phosphate of lime, and ammonio-phosphate of magnesia in admixture. In the inverse proportion to the prevalence of these impurities, these calculi present the characteristic properties of uric acid. You will, however, be able, under all circumstances, to distinguish them from all others, if you remember the behaviour of uric acid with nitric acid, which I minutely described to you in a former lecture. The best way to apply nitric acid as a test, is to place a fragment of the calculus to be examined upon a platina spatula, and drop upon it some common nitric acid. When uric acid is present, a lively effervescence ensues, with the cause of which you are well acquainted. Evaporate the resulting solution by a low heat, and add ammonia, when a purple colour is produced, characteristic of the presence of uric acid.

"*Urate of Ammonia Calculi.*—Calculi composed of URATE OF AMMONIA are of much rarer occurrence than the former, particularly in a pure state. They are generally found in children. They present various shades of colour, between a whitish-gray and a light-brown; they have usually a smooth surface and earthy fracture, and are made up of concentric layers, which are easily separated from each other. As I have just stated, they very seldom occur pure, commonly containing uric acid and small quantities of the phosphates. It is very easy to distinguish these calculi from those composed of uric acid. They dissolve in boiling water, except there are admixtures of other substances; whilst uric acid is, as you must remember, very slightly soluble. When you have examined a calculus, and proved it to contain uric acid, and it also yields ammonia when treated with potass, this must not be supposed to prove that it is urate of ammonia; the generation of ammonia may also arise from the decomposition of ammonia-phosphate of magnesia present in the calculus.

"*Oxalate of Lime Calculi.*—Urinary concretions which consist of OXALATE OF LIME occur frequently. They are distinguished by their external appearance: those with a rugged surface, dark colour, and larger size, are termed MULBERRY CALCULI, whilst smaller ones, with a smooth surface, are known as HEMP-SEED CALCULI. These calculi are always very hard, and imperfectly laminated. They almost invariably contain small quantities of uric acid, phosphates, and animal matter of uncertain composition. They are insoluble in water and alkaline fluids, but generally dissolve completely in acids. The mulberry calculi are easily distinguished by their behaviour before the blowpipe: the oxalate of lime is converted into a carbonate by heat, and this latter salt loses its carbonic acid at a higher temperature, and becomes caustic lime. After being subjected to the action of the blowpipe, therefore, mulberry calculi may be slaked by water, and impart to it an alkaline reaction. As, however, many calculi contain some amount of carbonate of lime, which, if submitted to the process I have described, would produce the same result—namely, a residuum, which slakes on the application of water,—you should never omit the employment of the usual tests for the presence of oxalic acid. For this purpose the calculus is to be pulverized and boiled with carbonate of potass; by this means carbonate of lime and oxalate of potass will be formed; filter, and add an excess of acetic acid to the filtrate, to decompose the surplus of carbonate of potass, then, if a solution of sulphate of lime be added, oxalate of lime will be precipitated.

"*Phosphate of Lime Calculi.*—Calculi composed of PHOSPHATE OF LIME are very rare. Up to the present moment no one has had an opportunity of examining such except Dr. Wollaston. Those which he has described had a smooth surface and a chalky fracture, in which distinct layers could be perceived. They contained an organic matter by which the phosphate of lime was agglutinated, and they consequently became black before the blowpipe. By the continued application of heat they again became white, and finally fused.

small quantities, in boiling water, and in oxalic and muriatic acids. It also di-

"*Ammonio-Phosphate of Magnesia Calculi.*—Those calculi which consist of AMMONIO-PHOSPHATE OF MAGNESIA are met with frequently, but those in which this double salt is combined with phosphate of lime are still more common. Both these species of concretion are similar in appearance; their surface is generally rough, and they have internally an earthy or chalky appearance, very rarely exhibiting a crystaline structure. Sometimes, however, they are covered with crystals externally, and occasionally cavities are found in them filled with crystalized ammonia-phosphate of magnesia. There is little difficulty in recognizing these calculi, or in discriminating between the two kinds, notwithstanding the similarity of their external appearance. Ammonia is evolved from both kinds when acted on by caustic potash. Both dissolve readily in nitric and muriatic acids. To an acid solution, ammonia is first to be added, until a feeble alkaline reaction is exhibited, when a slight precipitate forms, then acetic acid, until the precipitate disappears. The addition of chloride of iron, and boiling the solution, causes all the phosphoric acid to be deposited in the form of phosphate of iron. The filtered liquid is then to be tested in the ordinary manner for lime and for magnesia.

"We now arrive at those urinary concretions which, as I have told you, contain certain peculiar organic substances; of these there are two species; and it is both interesting and useful to become acquainted with their composition and properties. These calculi occur but very rarely. One of these species of calculi, however, has been observed more frequently in France. It was originally discovered by Dr. Wollaston, and is called cystic oxide, or cystine. It contains, as a constituent, sulphur.

"*Cystine Calculi.*—Cystic oxide calculi, as I have already told you, are of rare occurrence; they consist of somewhat compact crystaline masses, of a yellowish or greenish colour, and smooth surface. They may be broken into fragments without difficulty; their fracture is crystaline, with the lustre of wax, and their fragments are translucent at their angles. Such calculi generally consist of pure cystine; sometimes, however, their surface is coated with phosphates.

"Urinary calculi composed of cystine are readily soluble in the fixed alkalies and in ammonia. They are thus distinguished from those consisting of phosphate of lime, oxalate of lime, or phosphate of magnesia, these being insoluble in ammonia; whilst they are distinguished from those containing uric acid by their solubility in acids.

"In order to obtain cystine in a pure state, cystic oxide calculi are dissolved in caustic potass, and acetic acid added in excess to the boiling hot solution; upon cooling, the cystine separates in colourless, transparent, lamellar crystals. When a filtered solution of cystine in ammonia is left to evaporate gradually, more perfect crystals are obtained.

"*Zanthine Calculi.*—But there is another species of calculi consisting of a peculiar organic substance, quite different in constitution to cystine. This was discovered by MARCET, and has been termed, *zanthic oxide*, zanthine, uric oxide, and urinous acid. The designation ZANTHINE, appears to be preferable, and by this we shall continue to speak of it.

"The calculi containing zanthine are as rare as those with cystine; their surface is generally smooth and shining, of a whitish colour, but sometimes without lustre; they are rather hard, and their fracture exhibits a brownish flesh colour; they consist of concentric layers without any appearance of a crystaline formation. When rubbed or scraped, they acquire the lustre of wax. These calculi show a very characteristic reaction with nitric acid. This acid dissolves them at the boiling point without the evolution of gas. This distinguishes them perfectly from uric acid calculi. The solution in nitric acid being evaporated, leaves a citron-yellow residue, soluble in caustic potass, and in this menstruum acquiring a reddish-yellow tint. The characteristic purple colour which uric acid gives with nitric acid and ammonia, cannot in any way be produced with zanthine.

"To obtain this organic substance pure, the calculi containing it must be dissolved in caustic potash, and the solution saturated with carbonic acid. The zanthine separates in the form of a white precipitate, which contains no trace of potash. On being dried, it forms hard pale-yellow fragments, which acquire lustre on being rubbed. Zanthine is also soluble in solutions of alkaline carbonates, in

small quantities, in boiling water, and in oxalic and muriatic acids. It also dissolves in concentrated sulphuric acid, forming a yellow-coloured solution, from which nothing is precipitated on adding water."

10. *Urine in Typhus.*—SCHÖNLEIN's opinion that the urine in the regular course of typhus is at first dark and very acid, subsequently neutral and even alkaline, and finally again becomes acid at the commencement of convalescence, has received further confirmation from the following observations quoted by Simon in his "Beiträge."

In one case the urine became faintly alkaline on the seventh day after admission; it remained either alkaline or neutral for seven or eight days; and then became faintly acid and gradually clearer, as soon as the patient exhibited symptoms of convalescence.

In a second (very severe) case the urine remained acid till the twenty-first day; it then became neutral, and afterwards alkaline, for the space of ten or eleven days, when it returned to its normal reaction.

In two other cases the urine became alkaline previously to the fourteenth day of the disease; in one of them the secretion was so thoroughly saturated with carbonate of ammonia, and evolved so disgusting an odour as to be perceptible over the whole ward. This urine deposited a considerable sediment of pus or mucus, mixed with the phosphates of lime and magnesia, and effervesced briskly on the addition of an acid. In one of these cases the urine remained alkaline for fourteen, and in the other, for twenty-one days, before it resumed its acid reaction. Both cases recovered.

It is worthy of notice, that a deposition of urate of ammonia not unfrequently precedes the occurrence of alkalinity and the appearance of the earthy phosphates, which, as Schönlein remarks, may be regarded as the precursors of a favourable change.

During the mild form of typhus recently (1843) prevalent in Berlin, he noticed these changes in several cases, and in fact, when from being alkaline the urine again became acid, and at the same time clear and abundant, there was scarcely any risk in giving a favourable prognosis.—*Day's Report* in *Ranking's Abstract*, vol. ii.

11. *Urostealith, a new substance found in a Urinary Calculus.*—Dr. HELLER announces the discovery in a urinary calculus of a new substance, to which he has given the name of urostealith. It is soluble in carbonate of soda; and when this remedy is administered, urostealith in a state of solution is found in the urine.

The patient was a man of tolerably good constitution, aged 24 years; he complained of pain in the region of the right kidney, and difficulty in micturition, occasionally passing small elastic soft concretions. These were examined by Heller, and found to be perfectly soluble in alkalies, with which they formed a soap.—*Ibid.*, from *Archiv. für Phys. und Patholog. Chem.*, vol. ii. p. 1.

MATERIA MEDICA AND PHARMACY.

12. *On the proportion of Nitrogen contained in alimentary substances taken from both the organic kingdoms as a comparative measure of their nutritive powers.* By Dr. J. SCHLOSSBERGER and ALEX. KEMP, Assistant Chemical Teachers in the University of Edinburgh. (*Edinburgh Med. and Surg. Journ.*, April, 1846.)—In this very interesting paper the authors observe that "the distinction between the elements of the reproductive and those of the respiratory functions, is probably one of the most fertile ideas for which physiology is indebted to modern chemistry; even if we do not admit that division in its full extent, nevertheless we must allow it to be a beautifully conceived idea, and one founded on a great amount of observation. It may be assumed with safety that no other classification of the substances comprised under the vague designation of alimentary bodies, has in an equal degree represented the essential differences in their chemical composition and their physiological effects, or has presented to the eye of the mind the important part which

these substances perform, as the above-mentioned distinction, which is also identical with that of *azotized* and *non-azotized* bodies.

"In order to give some indication of the state of confusion which existed, even in this most elementary proposition of dietetics, previous to that distinction being made, it may not be more than necessary to mention the idea of that classical author, Dr. Prout,* that the nutritive power is in direct proportion to the quantity of carbon. At the present day not a single fact is known which can support the idea of the animal body being able to form azotized from non-azotized substances,—possibly, under the influence of ammonia or of nitrogen from the atmosphere; on the contrary, all experiments, as well as daily observation, seem to prove the absolute necessity of azotized food for the preservation of the individual. Chemistry has likewise demonstrated the presence of a more or less high, but constant proportion of nitrogen in all the tissues and fluids of the animal body, while in all those substances which, according to our modern ideas, are the most nutritive, namely, the *proteine* compounds, the carbon is present in medium quantity. Those substances esteemed by Prout the most nourishing, because richest in carbon, as the fats and oils, must be altogether excluded from the list of reproductive bodies, except in so far as fatty matter is necessary to the formation of animal cells. The chemical physiologist could make use of the theory of Prout, in measuring the fitness of the bodies necessary to respiration, if along with the carbon could be taken into account the quantity of combustible or unoxidized hydrogen contained in them; but for those substances, which in the strict sense of the word are capable of being transformed into blood and animal tissue, according to our present knowledge, the capability for these purposes may be estimated relatively by the amount of nitrogen. This has been already done to a certain extent by the researches of several chemists and physiologists, but, so far as we are aware, it has been confined to vegetables; and it therefore appeared to us not to be without interest to make use of the same principle in extending the investigation to the various alimentary substances taken from the animal kingdom, and so to give to the physiologist a basis founded on facts in a department which has hitherto been so defective in the mysterious doctrine of nutrition.

"Already Boussingault and Liebig have demonstrated, that in general the amount of proteine compound, and therefore that of nitrogen, is in a direct ratio to the phosphates; this proposition has as yet been extended only to vegetable matters, but will most probably preserve its value when applied likewise to those derived from animals. In so far as the nitrogen may be taken as an indication of the quantity of these salts, we could not find any observations as to how far it might be also applied to the gelatigenous compounds; and we have alluded to this as a very interesting field for future research, particularly with regard to the phosphate of lime, which seems so universal and so necessary to the whole animal economy.

"It seems to be at present a proper time to overcome an objection, which, if not alluded to, might have been made against our attempt to determine the nutritive power of animal aliments; it is with regard to the delicate question of the use of animal gelatine, which seemed to Mulder, and likewise to us, as not at all decided by the experiments lately made at Paris. It is a fact sufficiently proved by the experiments of Magendie, Tiedemann and Gmelin, that any substance, even the most nourishing, if very simple and used without admixture, cannot sustain animal life for any length of time; and if it was proved at Paris that dogs fed exclusively on gelatine perish, it is far from being just to conclude that the substance is not nutritive, as we should be compelled to apply the same rule to albumen and fibrine, by the exclusive use of which an animal would no less speedily perish. At all events gelatine has a high value as nutriment, if even that value arises alone from its being useful in the formation of gelatigenous tissues; in addition, the gelatigenous tissues, as well as those containing proteine, in regard to their formation and chemical constitution, seem to lie in close relation, although that relation is at present not perfectly understood.† The experience of our best physicians at the bedside of the patient tends to prove that during convalescence a well-prepared gelatinous diet, but not exclusively gelatinous, is highly nutritious.

* See Mayo's Outlines of Human Physiology, p. 206, second edition. London, 1829.

† See Mulder's Chemistry of Animal and Vegetable Physiology, translated by Fromberg, 319 and following pages.

"All organic alimentary substances, as presented to us by nature, are mixtures, but seem to be pretty constant in their composition, although variously modified by our different modes of cooking them. Of such natural mixtures, the greater part taken from vegetable bodies have already had the proportion of nitrogen contained in them determined by previous observers; and we believe we shall best introduce the subject by a concise representation of that which has been done in regard to the vegetable part of our aliments, which will likewise afford the best means of comparing the results of our experiments on animal substances.

"The following table shows the amount of nitrogen contained in 100 parts of the dry vegetable bodies named in it:—

Rice,	1.39	Boussingault, *Economie Rurale.* Paris, 1844, tome 2me, p. 438.
Potatoes,	1·5	
Turnips,	1·7	
Rye,	1·7	
Oats,	2·2	
Wheat,	2·0 to 2·3	
Carrots,	2·4	
Barley,	2 0	
Maize,	2·0	
Peas,	3·8	
Lentils,	4·4	
Haricots,	4·5	
Beans,	5·1	
White bread,	2·27	R. D. Thomson in the London and Edinburgh Philosophical Magazine for November 15, 1843.
Brown bread,	2·63	
Glasgow unfermented bread,	2·14	
Essex flour,	2·17	
Canada flour,	2·21	
Lothian flour,	1·96	
United States flour,	1·82	
Agaricus deliciosus,	4·6	Schlossberger and Dœpping, Liebig's *Annalen* for October, 1844, Chemical Gazette, July, 1845.
" russula,	4·2	
" cantharellus,	3·2	

"Boussingault has calculated from the results of his experiments, that which he calls the equivalent nutritive powers of these substances for the domestic herbivorous animals, and Thomson has also given one for those bodies which he examined."

The authors then give an account of their own experiments. All the substances made the subject of observation were first carefully dried at 212° F., and then analyzed according to the method of Varentrapp and Will, slightly modified to overcome some practical difficulties.

In each experiment the amount of ammonio-chloride of platinum yielded, with its correspondent equivalent of nitrogen, is given. We shall present the results for the sake of brevity in a tabular form.

	Per cent. of Nitrogen.		Per cent. of Nitrogen.
Cows' milk,	3·78	Double Gloucester cheese, very old, and abounding in mites and mould,	5·27
Human milk,*	1·59		
Dunlop cheese,	6·03		
Gonda cheese,	7·11	Yolk of the egg of the common fowl,	4·86
Cheshire cheese,	6·75		
Double Gloucester do.,	6·98	Oyster (*O. edulis*),†	5·25

* Human milk is, according to most analyses, one of the poorest in caseine, and in this respect is very far inferior to that of the cow, but in consequence of this may probably be more easily digested. The amount of nitrogen in milk, which corresponds to that of caseine, comes much nearer to the proportion contained in vegetables than any other kind of aliment from the animal kingdom.

† As this seemed a low result, the analysis was repeated, which confirmed the first experiment.

	Per cent. of Nitrogen.
Yellow matter (liver and bile) from the crab-fish, *C. communis*,	7·52
Common mussel, (*Mytilus edulis*)	8·44
The same previously boiled,	10·51
Ox liver,	10·66
Pigeon liver,	11·80
Portable soup,	12·16
Common eel, raw flesh,	6·91
Do. do. boiled flesh,	6·82
Do. do. first washed in distilled water, and afterwards boiled in alcohol as long as any mat. separated,	14·45
Flesh of salmon, (*S. fario*),	12·35
Do. do. do. boiled,	9·70
Do. do. do. purified muscular fibre,	15·62
Raw herring, (*C. harengus,*)	14·48
Boiled herring,	12·85
Purified muscle of herring,	14·54
Milt of the herring,	14·69
Flesh of the haddock,	14·64
Boiled haddock,	12·98*
Purified muscle of the haddock,	15·72
Flesh of the flounder, (*Platessa flessus,*)	14·28
Boiled flounder,	15·18
Purified muscle of flounder,	15·71
Flesh of the skate, (*Raia batis,*)	15·39
Boiled skate,	15·22
Boiled muscle taken from the claw of the crab-fish,	13·66
Flesh of the pigeon,	12 15
Boiled pigeon,	12·33
Purified muscle of the pigeon,	13·15
Lamb,	13·26
Purified fibre of lamb,	14·56
Mutton,	12·30†
Boiled mutton,	13·55
Purified fibre from mutton,	14·76
Veal,	13·89
Veal, boiled,	14·50
Veal, purified fibre,	15·78
Ox-beef,	14·00
Ox-beef, boiled,	14·98
Purified fibre of beef,	14·88
Lungs of the ox,	14·81
Pork-ham, boiled.	12·48
Do. do. purified fibre,	14·21
White of fowls' egg,	13·44

To these experiments the authors add the following remarks:—"The proportion of nitrogen in purified muscular fibre seems to be identical, from whatever part of the animal kingdom it may be obtained; and the differences given by the results of analysis may be fully explained by the difficulty, or even impossibility, of analyzing it in an equally pure or impure condition, as obtained from different animals, in which it is always mixed with cellular tissue, minute vessels, and nerves. Moreover, it is extremely difficult to get rid of traces of fat and hematine.

"That the chemical properties of muscular fibre in the whole animal kingdom are identical, one of us endeavoured to prove in a former research (Schlossberger, *Vergleichende Untersuchungen uber das Fleisch verschiedener Thiere.* Stuttgardt, 1840). In contradiction to a very generally received opinion, it appears to us that the muscles of fish are as rich in nitrogen as those of higher animals; at first sight, however, owing to the presence of a greater quantity of water, and in some fishes, as the eel, to a difficultly separable fat, its amount appears very much lower. Further, as the proximate principles are essentially the same in both classes of animals, it seems to us that they should be equally nutritive, although this proposition is also directly opposed to another very general prejudice. According to our scale, the oyster does not seem nearly so nourishing as it is generally reputed to be by common opinion, although it is possible that the proteine compounds in the lower classes of animals may be found to be much richer in phosphorus, in sulphur, and in phosphates than in the higher. Should this prove to be the case,

* Whereas, the authors observe, in the case of the herring, salmon, haddock, and eel, the proportion of nitrogen was considerably diminished by boiling the flesh for about half an hour, the reverse of this occurred in some of the other cases; for example, in the mussel, the flesh of the ox and calf. These are mere observations of facts, arising probably from accidental causes: the modification which meat undergoes by boiling not being sufficiently understood by chemists at present, although Mulder has proved the formation of oxide of proteine by it; from the observations just made, no general conclusion can be drawn, because they do not seem to coincide, at least at first sight.

† In this case, the authors remark, it was found extremely difficult to separate mechanically the whole of the fat; it is necessary to notice this, as the numbers are somewhat lower than might have been expected.

we can see, that although the proportion of nitrogen may not be so great, nevertheless that they might act more powerfully as *stimulants*, which, as regards the oyster, is believed by some of our best physicians. We intend in a future series of experiments to direct our attention to this part of the subject.

"In order that our views on this subject should not be misunderstood, it is necessary for us to state, that we do not consider the proportion of nitrogen, taken alone, to be an absolute measure of the nutritive power of our aliments; but as there is a total want of any positive data in regard to this subject, and as so many different and contradictory opinions are given in the works on dietetics,* it must be granted that any attempt to fix a standard for comparison is not without interest.

"With respect to the capability for nutrition, we are far from denying that the physical condition, the state of admixture, the peculiar kind of proteine compound, the amount of water and other inorganic matters, of fat, and lastly, the effects of cookery, must necessarily have a very great influence on the physiological effects of our aliments.

"There is one consideration in particular which requires to be noticed, namely, the distinction between the absolute amount of the nutritive matter, and that portion of it which is in such a state as to be easily digested and assimilated by the system, in the same way as a soil produced from minerals abounding in alkaline salts is not always the most fertile as regards plants with a predominance of alkaline bases, but the fertility of which depends on the amount of these bodies contained in a state in which they can be taken up and made use of by the plant. Thus an aliment abounding in nutritive matter may be inferior to one with a much smaller quantity as regards the nourishing effects produced by it; if in the first of these cases only a part, in the second the whole may be easily absorbed and assimilated. Here we must rely upon the experiments of the physiologist as to the degree of digestibility of different substances; and there already exists an excellent basis in the researches of Beaumont and of Blondlot. This is one of the questions, in which, by the co-operation alone of the physiologist and chemist, any progress can be expected to be made in the elucidation of this point. If the work were once fairly begun by the physiologist, chemistry would not be long in rendering that assistance which would then be found necessary; for example, in the various experiments which might be made in artificial digestion, from the results of which as one element in the calculation taken along with the proportion of nitrogen as the other, it would at once be possible to determine scientifically the real nutritive value of the different kinds of aliment; the importance to our dietetics of this method of determination, which at present exists only in idea, would then not only be felt by the patient, but by the whole human race.

"Table of the comparative proportion of nutriment in our organic aliments. If we assume the amount of nitrogen in human milk, perfectly dried at 212° F., to be represented by 100, we can then express the degree of nutritive power of the other alimentary substances by the following numbers:—

Vegetable.		*Vegetable.*	
Rice,	81	Peas,	239
Potatoes,	84	Agaricus russulu,	264
Turnips,	106	Lentils,	276
Rye,	106	Haricot beans,	283
Maize,	100 to 125	Agaricus deliciosus,	289
Barley,	125	Beans,	320
Unfermented bread of Glasgow,	134	*Animal.*	
Oats,	138	Human milk,	100
White bread,	142	Cow's milk,	237
Wheat,	119 to 144	Oyster,	305
Carrots,	150	Yolk of egg,	305
Brown bread,	166	Cheese,	331 to 447
Agaricus cantharellus,	201	Eel, raw,	434
		" boiled,	428

* See all works from Plenk's *Bromatologia* to the latest, as Paris's Treatise on Diet, as well as our standard works on Materia Medica, and we think it will be allowed that we have not asserted too much.

Liver of crabfish,	471
Mussel, raw,	528
" boiled,	660
Ox-liver, raw,	570
Pork-ham, raw,	539
" boiled,	807
Salmon, raw,	776
" boiled,	610
Liver of pigeon,	742
Portable soup,	764
White of egg,	845
Crabfish, boiled,	859
Skate, raw,	859
Skate, boiled,	956
Herring, raw,	910
" boiled,	808
" milt of,	924
Haddock, raw,	920
" boiled,	816
Flounder, raw,	898
" boiled,	954
Pigeon, raw,	756
" boiled,	827
Lamb, raw,	833
Mutton, raw,	773
" boiled,	852
Veal, raw,	873
Veal, boiled,	911
Beef, raw,	880
" boiled,	942
Ox-lung,	931

Purified muscular fibre from various animals.

Fibre of eel,	908
" salmon,	982
" herring,	914
" haddock,	988
" flounder,	988
" pigeno,	775
" lamb,	916
" sheep,	928
" calf,	993
" ox,	935
" sow,	893

Proximate principles of animals calculated from the quantity of nitrogen as determined by Mulder.

Pure proteine,	1006
" albumen,	996
" fibrine,	999
" caseine,	1003
" gelatine,	1128
" chondrine,	910

13. *On the Properties of the Leaves of the Oxalis Crussicaulis, and their use as an Astringent, especially in Hemorrhages and Chronic Catarrh.* By Dr. Montain.—This species of oxalis is a native of Peru. Its roots are numerous, and constitute, as do also the leaves, a very agreeable and nourishing article of food. The leaves likewise furnish an astringent juice, which is very acid, but agreeable, and which keeps for a long time without spoiling.

A little before frost, the stems are collected, submitted to strong pressure, and a large quantity of juice is obtained. By macerating the residuum in a certain quantity of water, we obtain a liquid slightly astringent. This juice unites easily with the sugar to form a syrup, of an acid and slightly aromatic flavour. When mixed with water it furnishes an agreeable drink.

M. Montain administers the juice either pure or sweetened, and in different proportions. The dose internally—is three to six tablespoonfuls a day. It is sometimes administered in the form of injection. It is employed in this last way, and with success in cases of vesicular polypus of the nasal fossæ.

Chronic metrorrhagia, and most other hemorrhages of the same nature, not connected with any organic affection, seem to be much benefited by its use after fifteen days treatment. Chronic catarrh, diarrhœa and dysentery, are successfully combated by the juice of the oxalis, either pure, weakened with water, or in the form of syrup. It is also efficacious in cases of blennorrhagia, especially those which resist the effects of copaiva and cubebs.

This astringent M. M. considers worthy of attention, as succeeding in some cases where other articles of the same class have failed.—*Journal des Connaissances Medico-Chirurgicales*, Nov. 1845, from *Journ. de Méd. de Lyon*, July, 1845.

14. *On Amorphous Quinine as it exists in the substance known in commerce as quinoidine.*—[The *Lancet* of May 28th contains a very important paper on this subject, by Baron Liebig, which we transfer to our pages entire.]

In the preparation of sulphate of quinine, after all the crystals which can be obtained are separated, a dark-coloured mother-liquor remains, having an extremely bitter taste. On the addition of an alkaline carbonate, this liquid loses its colour and bitter taste, depositing, at the same time, a yellowish-white, or brown-

ish precipitate, which, after being rinsed with water, and exposed to a gentle heat, agglutinates into a coherent mass, exhibiting the appearance of resin.

From the experiments of Sertuerner, Thiele, Bucholz, Junior, Koch, and other chemists, it has been long known that this resinous substance possesses the properties of a base, that it neutralizes acids perfectly; but the salts which are formed by these combinations with acids, have baffled all attempts at crystalization.

Sertuerner, who was the first chemist to separate this resinous substance from the mother-liquor of sulphate of quinine, considered it to be a distinct and peculiar organic base, existing in yellow and red cinchona barks, associated with quinine and cinchonine. He assigned to this, as he supposed, new substance, the name quinoidine, and greatly extolled its medicinal efficacy, in which he declared it was in all respects equal to quinine. In his journal, (*Uber die neuester Furtschritte in der Chemie, Physik und Heilkunde*, bd. iii., No. 2, page 269,) he terms it "a true fever-destroyer."

Subsequently, this substance, under the term quinoidine, has been employed medicinally in many places, and even introduced into the lists of commercial articles or price currents of many of the druggists of Germany.

In certain mother-liquors of quinine left in the preparation of the sulphate, which were analyzed by Henry and Delondre, and also a sample of quinoidine examined by Geiger, these able chemists discovered an amount of quinine and cinchonine, accompanied by a resinous substance which they considered impeded the crystalization of the sulphates of the two bases, and which in their experiments they failed to separate. The results obtained by these chemists, and the inferences obviously deducible from these results, rendered it indubitable that the medicinal efficacy of quinoidine must vary according to the greater or less proportion of quinine it may happen to contain. Now, there cannot be a doubt but that this uncertainty with respect to the relative amount of quinine in commercial quinoidine, has prevented many physicians from prescribing the latter as a remedy, notwithstanding the testimony borne to its efficacy.

Having occasion, some time since, to pass through Coblentz, I procured from Messrs. Jobst & Co., of that town, a sample of quinoidine, for the purpose of employing it for the preparation of quinoleine—a substance discovered by Gerhardt to result from the transformation of quinine, and to which much scientific interest attaches, in consequence of the recent discovery of Professor A. W. Hoffman, that quinoleine is identical with leucol, a body which is one of the components of the essential oil of tar, prepared from anthracite coal. It then occurred to me, that if the sample of quinoidine which I had procured contained quinine, it must yield a corresponding amount of quinoleine, and that, consequently, a very simple method of testing quinoidine for the amount of quinine it may contain might be based upon this property of quinine to be transformed into quinoleine.

On subjecting the sample I had obtained (which amounted to several ounces) to distillation with strong potass ley, I confess I was surprised at the large amount of quinoleine produced, which proved the presence of a far larger proportion of quinine than could have been anticipated. This unexpected result induced me to subject quinoidine to a stricter examination; and in order to avoid being misled by accidental circumstances, I procured, beside the Coblentz sample, specimens from Messrs. Hess, Leissler, and Fiedler, of Mayence, and from Messrs. Mettenheimer and Simon, at Frankfort, and also from a druggist at Hamburgh.

These various samples of quinoidine I received partly in irregularly-shaped masses, and partly as square cakes of a darker or lighter brown colour, which, by the warmth of the hand, became soft and flexible, but were readily pulverizable in the cold. The operation of powdering it imparted to it an extraordinary degree of elasticity. All these samples were completely insoluble in cold water, but scantily soluble in hot water, imparting to the latter a strongly bitter taste. I may here, however, observe, in passing, that some commercial specimens which I have since seen are soluble in cold water, arising from a considerable admixture of other substances; differing, also, from the same cause, in many of the following properties:—

All the first samples I speak of dissolved in alcohol, in the proportion of one part to two of the menstruum; and from this alcoholic solution, water precipitates copious, yellowish-white, resinous flakes, which cohere into a mass like the

original quinoidine. Dilute mineral acids, as well as most of the organic acids, dissolved my samples entirely, and by adding a sufficient amount of the substance, became completely neutralized. From these solutions in acids, ammonia and alkaline carbonates precipitated resinous flakes. On agitating the fluid containing these flakes and the flocculent precipitate with an equal volume of ether, the precipitate dissolves in the ether, *with the exception of a dark-brown residue.* On evaporating the ether, a resinous mass is obtained, having all the properties of an organic alkaloid.

Its salts are precipitated by tannic acid. Chloride of platinum produces in its solution in hydrochloric acid a yellow precipitate. Moreover, it dissolves completely in a solution of sulphate of copper with the separation of oxide of copper. Now there exists no resin, nor, indeed, any other substance similar to resin, which possesses this peculiar property.

These observations can leave no doubt whatever as to the chemical character of a considerable proportion of the residue to which the term quinoidine has been applied—namely, that it is a true organic base.

On subjecting the purified substance to elementary analysis, the following were the results:—

1st.—From the quinoidine of Mayence, 0.490 grammes yielded 1.3204 grammes of carbonic acid, and 0.3395 grammes of water.

2d.—From the quinoidine of Frankfort, 0.618 grammes yielded 1.6575 grammes of carbonic acid, and 0.4250 grammes of water.

3d.—From the quinoidine of Coblentz, 0.3475 grammes yielded 0.9475 grammes of carbonic acid, and 0.2375 grammes of water.

According to these analyses, this substance contains

	i.		ii.		iii.
Carbon . . .	73.49	...	73.14	...	74.33*
Hydrogen . .	7.69	...	7.64	...	7.57

The determination of the nitrogen, by the method of Verrentrapp and Will, yielded the following results:—

0.515 afforded 0.289 of platinum.
0.617 " 0.401 "

And, consequently, the substance under examination contains, according to the first analysis, 8.04 of nitrogen: according to the second, 9.54 of nitrogen—the medium of the two analysis giving us as its amount of nitrogen, 8.79.

Analysis of the Chloride of Platinum and the Base from Quinoidine, (Amorphous Quinine.)

I.—0.6663 grammes of the double salt yielded 0.1755 of platinum; 0.8700 grammes of the double salt yielded 1.349 carbonic acid, and 0.303 of water.

II.—0.881 grammes of double salt yielded 0.224 of platinum.

III.—1.0668 grammes of double salt yielded 0.2715 of platinum.

From these analyses, therefore, the following are the proportions of carbon, hydrogen, and platinum, which exist in 100 parts of the chloride of platinum, and the substance derived from quinoidine:—

	i.		ii.		iii.
Carbon . . .	32.44				
Hydrogen . .	3.86				
Platinum . .	26.33	...	26.32	...	26.45

Now, if we compare the proportion of carbon, hydrogen, and platinum, existing in the chloride of platinum and this base, derived from quinoidine, with the amount of the same elements present in the corresponding chloride of platinum and quinine; and, further, the amount of carbon, hydrogen, and nitrogen contained in the substance under examination, with the proportion of the same elements as they exist in quinine; we perceive at once that the two substances have identically the same composition.

* Carbon = 75, according to Prout and Dumas.

Quinine, according to the formula,

$$C_{20}H_{12}NO_2$$

contains—

Carbon, 74.33; hydrogen, 7.75; nitrogen, 8.62.

Chloride of platinum and quinine, according to the formula,

$$Cl\,H\,C_{20}H_{12}NO_2+Cl\,Pt$$

contains—

Carbon, 32.38; hydrogen, 3.53; platinum, 26.83.

The inference from these experiments, then, is irresistible; the uncrystaline substance derived from quinoidine bears exactly the same relation to ordinary quinine that uncrystaline sugar (barley-sugar) bears to crystaline (sugar-candy). Both yield the same products of decomposition; both have the same atomic weight, and identically the same composition; they differ only in form: in one word, the one is crystaline, the other, *amorphous*.

I deem this to be an important discovery, when we consider the high price of quinine, the possibility of a check to the supply of cinchona bark from the countries producing it, and the amount of the crude quinoidine which has accumulated since the manufacture of sulphate of quinine was commenced. Quinine, indeed, seems to be absolutely indispensable for the treatment of diseases; the progress of civilization in modern times has depended, far more than has been conceived, upon the discovery of a remedy for the fevers which prevail where tillage is imperfect, and in new and unbroken soils.

This chemical investigation has thrown an interesting light upon the testimonies borne to the efficacy of quinoidine in the treatment of fever, and the highest encomiums have been passed upon it; but the commercial specimens have differed very much in value; while some have consisted nearly altogether of amorphous quinine, others have contained only a small per centage.

It is necessary that the amorphous quinine should be separated from all admixtures and impurities, and prescribed in its pure state. There can be no doubt but the same substance will produce the same effect on the animal organism, whether exhibited in a crystaline or an amorphous state. The system, as we may say, makes no difference in such a case. As I have already observed, the mystery about quinoidine is completely solved by the discovery, that it usually contains a very large per centage of pure quinine in an amorphous state.

In a commercial point of view, it is certainly a matter of great importance that we should be able to judge by the mere external appearance of a remedy, of its purity; and consequently, how far we may rely upon its efficacy. This is thought to be the case with the crystaline sulphate of quinine, whilst the non-crystaline form of quinoidine has probably led to a disregard of the evidence for its usefulness, even more than the fact of its being, as usually sold, an admixture of various substances. But with respect to the mere amorphous form, when the quinine is separated from all its adhering impurities, it is in the same case with opium, castor, and many more of the most efficient remedies which we possess, particularly with the extracts of our pharmacopœias. It is necessary to be assured of their purity before we employ them, but their amorphous form does not prevent their use. In many of these cases, indeed, having no direct or ready way of testing them, we rely solely upon the honourable character of the merchant and dealer; but we have a completely satisfactory test for the purity of amorphous quinine. Few medicinal agents afford so ready a means of distinguishing them, and detecting admixtures, as the organic alkaloids; but if these tests are not employed, it is as easy to be deceived in purchasing crystaline sulphate of quinine, as the amorphous.

Amorphous quinine is completely soluble in dilute sulphuric acid, and in alcohol, as I have said above; it is also completely soluble in a solution of sulphate of copper, with separation of oxide of copper. And if its solution in a dilute acid yields, upon precipitation by means of ammonia, exactly the same amount of precipitate as the weight of the substance originally dissolved in the acid, there can be no doubt remaining as to the perfect purity of the sample under examination.

It only remains for me to observe, that no dependence should be placed upon

the ordinary quinoidine of commerce. As I have already stated, some samples which I have seen, dissolve incompletely in water, forming a dark-brown muddy fluid; these have been probably produced by simply evaporating the mother-liquors of sulphate of quinine to dryness. They are, therefore, uncertain mixtures of various substances with sulphate of amorphous quinine, with or without excess of acid, so that in purchasing such specimens, the buyer is paying the price of an organic alkaloid for sulphuric acid, &c. The pure amorphous quinine should be separated, and it would then form a most valuable remedial agent; but the prescriber must be assured of its purity, and the test I have given will suffice for this purpose.

15. *Accumulation of Medicines in the System.*—M. Mialhe, in his *Traité de l'Art de Formuler*, makes some interesting remarks on this subject. "When," he observes, "an insoluble medicinal compound is introduced into the system, and cannot be entirely dissolved by the gastric and intestinal fluids, the insoluble portion of this body, or the insoluble whole, either traverses the entire length of the alimentary tube, to be expelled with the feces, or is arrested in its course, and lodges for a time in some of the folds of the intestinal mucous membrane. Thus the inconsiderate employment of caustic magnesia has given rise in the stomach of the gouty to extraordinary magnesian incrustation; insoluble preparations of iron, and especially the subcarbonate of the peroxyde, administered in two large doses, often occasion intestinal concretions. The accumulations may even occasionally be the direct consequence of the exhibition of too great a quantity of the medicine. But the insoluble matters thus accumulated do not all present the same dangers; those on which the vital fluids exert no effect, act on the surfaces with which they are in contact only as foreign bodies,—that is, by causing irritation and symptoms of inflammation, while matters capable of becoming soluble in consequence of a change in the quantity, or in the composition of the visceral humours, may thus become active, or often poisonous, and by their absorption give rise to severe or even fatal effects.

"It is thus that calomel, given as a purgative in large doses, occasionally causes ptyalism, and deeply affects the system: so also basic or officinal sulphate of quinine, administered in the dose of several grammes daily, though at first producing no remarkable physiological effect, has all at once given rise to symptoms of poisoning, followed by death. A few glasses of tartaric lemonade have occasioned vomiting and diarrhœa in a patient who had taken protoxide of antimony some days before, it is scarcely necessary to add from the formation of tartarized antimony. Iodurettted water, given to a patient affected with a cutaneous disease, who had a short time before been taking calomel as an alterative, has given rise to most profuse salivation, occasioned by the biniodide of mercury, resulting from the action of the iodurettted water on protochloride of mercury still remaining in the system."

MEDICAL PATHOLOGY AND THERAPEUTICS.

16. *On the Treatment of Urinary Diseases.* By John Aldridge, M. D.—It has long appeared to me a grievous error in the treatment of urinary diseases, the habit of regarding the alterations of the renal secretion in a purely chemical light. Exhibiting acids, if the urine be alkaline, and alkalies if this liquid be acid; and modifying the food, so as to diminish the chances of sugar getting into the system in cases of diabetes mellitus. These simple and most erroneous principles satisfy and guide the majority of practitioners in their treatment of urinary diseases. This error is not peculiar to the therapeutics of renal lesions: we every day see alkalies exhibited in pyrosis, not with the idea of curing the lesion of innervation, which constitutes the disease, but with the hope of neutralizing the acid secretion which is the effect. Yet, how much opposed to rational pathology is the theory upon which treatment of this kind is founded? and how ineffectual is it, usually, in the relief of those diseases to which it has been applied? You will see patients suffering from gastralgia and pyrosis, taking alkalies in large quantities for weeks

and months, without obtaining any permanent benefit: you will see patients emaciated and debilitated from chronic nephritis, or as it has been most erroneously called, the phosphatic diathesis, taking the mineral acids, for a very long period, without the urine becoming a bit less alkaline. Others, having gout or rheumatism of the kidneys, will have consumed pounds of the bicarbonates of potash and soda; during their use lithates, or crystalized lithic acid, will cease to deposit; but as soon as they intermit the employment of these salts, the uric acid, unaltered in quantity, and merely kept dissolved by the alkali, will upon the disuse of the latter precipitate in as large quantity as ever. Theory and experience equally demonstrate the inutility of the chemical treatment of urinary diseases.

Why not treat urinary diseases on the ordinary principles of therapeutics?—There are really no lesions discoverable in the various parts of the urinary apparatus, but such as you meet with in other portions of the organism. Plastic and suppurative inflammations, gout, rheumatism; alterations of nutrition, secretion, and innervation; these are all common to the different viscera of the cranium, the thorax, and the abdomen. It appears reasonable to expect, that the means experienced to be generally serviceable in a diseased condition of one organ, will be found equally beneficial in a similar disorder of another organ; and although it is certainly true that the utility of the same medicine will be found to vary according to the organ affected with a given lesion; and calomel in iritis, tartar emetic in pneumonia, turpentine in sciatica, colchicum in gout, iodide of potassium in periostitis, and opium in peritonitis, are examples of medicines which manifest an antagonism to inflammations in certain organs, much superior to what they display in other instances; still they present resemblances in their physiological and therapeutical effects sufficient to entitle them to be regarded as a distinct class of medicines; and in many cases they may be advantageously substituted for each other. Not the less, therefore, is the knowledge of the lesions of the urinary organs, and of accurate diagnosis, guides to the groups of therapeutical means amongst which you will have to select; although the determination of the particular remedies, especially serviceable in any given lesion located in some portion of the urinary apparatus, may be the specific province of experiment.

A strict adherence to system would therefore lead me to describe the treatment of urinary diseases, in the suite of their pathology and diagnosis; and if I pursue on the present occasion a different system, it is not because the pathology and diagnosis of these diseases are insufficiently developed for the purpose; for I consider that although we have much to learn with respect to the diseases of every viscus, the knowledge of urinary disorders has so rapidly progressed within the last few years, as to have now arrived, at least, to a level with other departments of medical science: but, unfortunately this knowledge is but very little diffused, among the members of the medical profession: philosophical views of the nature of disease are seldom entertained: the majority of practitioners still continue to wander through the misty regions of diathesis; and in place of looking through symptoms into lesions, are contented to rest on the superficial and sensible consequences of diseased action.

To render this lecture as generally useful as possible, I shall therefore tell you the treatment proper to each urinary indication, instead of that required by the governing lesion. And in this way, I hope to be enabled to bring together into one view, the pathology, diagnosis and appropriate treatment, in such a manner, as that each of these subjects may throw light upon the others.

Treatment of Diabetes Insipidus.—This is the name given to a symptom of urinary disease, in which an excessively increased quantity of water is habitually secreted from the kidneys, without any alteration of the solid elements of the urine. The specific gravity of this liquid, becomes consequently very much reduced. This symptom appears to depend on altered innervation, and it is best treated by the internal use of antispasmodics and mineral tonics, with the external employment of stimulating liniments to the spine.

Treatment of Lithic Acid Deposits.—These deposits are either crystaline or amorphous. When the urine for any length of time continues to deposit after each emission, the rhombic prisms of lithic or uric acid, this circumstance is an evi-

dence that the kidney is affected with gout: under such circumstances the immediate danger is the formation of a calculus; and to obviate this it is desirable to exhibit either bicarbonate of soda or potash, in doses of ten grains or a scruple, dissolved in half a pint of water three times a day, so as to render the urine neutral or alkaline: but this effect being obtained, the practitioner ought to direct his efforts to subdue the gout which is the cause of the symptom. If the urine be albuminous or sanguinolent, and there is much pain in the loins, it shows the attack to be of an inflammatory character, and to require a treatment locally antiphlogistic: otherwise recourse may be had to colchicum, or whatever remedy the practitioner prefers in the treatment of podagra.

If the lithic acid deposit be amorphous, its precipitation may depend either upon an excessive secretion of the solid constituents of the urine, or upon a deficiency in the secretion of water. In the former case, the specific gravity of the urine becomes normally increased in proportion to its quantity: and this symptom is usually dependent on rheumatism of the kidney. The treatment should, of course, be directed to the rheumatism, at the same time it is desirable to hold the excessive lithates in solution by means of alkalies. Iodide of potassium is a medicine that fulfils both indications, and given in doses of five or ten grains three times a day, will usually be found serviceable.

When the amorphous lithates become deposited from a deficiency of water, the quantity of urine will be ascertained, upon inquiry, to be less than usual. Sometimes, however, the patient is deceived as to this point by the concentrated and stimulating secretion, demanding frequent evacuation: under all circumstances it is most desirable, for diagnosis, that the daily discharge of urine should be measured. Diminution of the watery part of the urine may be produced by irritation of the kidneys either idiopathic or symptomatic; or it may be the result of a lesion of innervation; or it may be the consequence of a vicarious watery secretion from some other organ. When the deposited lithates are of a brick-red colour, the scanty secretion of water which produces their subsidence, is the effect of the first of these causes: in that case, a fever, either essential or symptomatic, exists; and the remedies calculated to remove the fever are those fitted to increase the urinary secretion, and diminish the lithic deposit. If the deposited lithates be pale or buff-coloured, the chances are that they are caused by a nervous diminution of the watery element, connected with that weakened action of the ganglionic nervous system to which the name of dyspepsia is given; if such be the case, the internal exhibition of a scruple of alum in half a pint of water, three times a day, will soon remove the tendency to lithic acid deposit. A pink colour of the sediment is usually found in connection with an imperfect discharge of the biliary functions.

Treatment of Phosphatic Deposits.—These deposits when principally crystaline, generally depend upon the urine being deficient in acidity: in that case, the treatment will be described under the head of alkaline urine. Sometimes, when the bladder has been long diseased, a copious deposit of amorphous phosphates subsides from the urine; it is always under such circumstances accompanied with pus; and the indications which are thus afforded for treatment I shall hereafter mention.

Treatment indicated by weakly Acid, Neutral, or Alkaline Urine.—If the urine be neutral, or weakly acid, from a vice of secretion, it usually shows that the kidneys are inflamed. I have already described to you the differential diagnosis of acute nephritis, chronic nephritis, and the renal complication of typhus fever. In acute nephritis, the employment of general and local depletion, as well as the exhibition of emollients, and contra-stimulants, must be regulated by the severity of the disease, and the state of the constitution, according to the ordinary principles by which inflammations are combated: I am persuaded that I have seen much benefit from large (℈) doses of hydriodate of potash in this disease. In chronic nephritis, you will find great benefit from local depletion and counter-irritation, especially from the establishment of setons in the neighbourhood of the affected glands. In the renal complication of typhus, large blisters to the loins, and the internal administration of wine, are usually indicated; small doses of oil of turpentine will, in these cases, often increase the quantity and restore the acidity of the urine.

Treatment of the Oxalate of Lime Deposits.—Although there can be little doubt

that oxalic acid is generated in the urine by the putrefactive decomposition, and often occurs subsequent to secretion, in a manner totally independent of disease, yet it is also certain that this decomposition frequently results from an essential vice of secretion. The morbid conditions which give rise to this change are not yet known; but one thing is well ascertained, that in every instance of the kind there is frequent desire to pass water, pain in passing it, and that the secretion is commonly loaded with epithelium. These phenomena proclaim the existence of irritation of the mucous membrane. Sometimes the crystals of oxalate of lime, like those of uric acid, cohere in the calyces and infundibula, forming calculi, which produce paroxysms of nephritic colic, by their descent into the bladder. In such cases, inflammation of the lining membrane may be mechanically produced; but it is doubtful whether the symptoms of mucous irritation which usually accompany the oxalate of lime deposit, are due to the irritating contact of the sharp crystals. Whatever is the cause of the mucous irritation, it constitutes the lesion which in oxalate of lime diathesis, you are especially called on to remove; and its successful treatment requires no little delicacy in the application of therapeutical agents. Unlike acute mucous inflammation, depletion and emollients will act in this irritation injuriously, if employed in the first instance; you must have recourse to tonics immediately, such as the mineral acids, vegetable bitter astringents, &c.; and having employed those means for some time, you will then find the greatest benefit from alkalies largely diluted. It will be often necessary to alternate these methods of treatment for a considerable period, but you will generally find that ultimate benefit will be derived from steady persistence in their use. The form of tonic mixture which I usually employ in these cases is the following:—R.—Infusi Cascarillæ ℥6; Nitratis Potassæ ʒj; Acidi Nitrici diluti ʒl½; Tincturæ opii ʒj. M. Sumat cochlearia duo ampla ter in die.

Treatment indicated by Albuminous Urine.—Mottled kidney, which is essentially an inflammation of the lining of the urinary conduits, and acute mucous inflammation, are the two principal pathological causes of albuminous urine. These diseases, according to the views which I have laid before you, are both acute inflammations, standing in the same relation to each other as croup, bronchitis of the large tubes, and capillary bronchitis. Their treatment must consequently be very similar; active depletion both local and general, the continued exhibition of nauseating doses of tartar emetic; hydragogue purgatives; warm baths; and all the resources usually had recourse to in active inflammations of internal viscera. Modern therapeutics has made no more valuable discovery than that of the utility of alkalies in cases of mucous inflammation. The diseases under consideration are particularly suited for continued alkaline medication, subsequent to the employment of more energetic agents. These means will require to be strenuously persisted in: but it is a common character of urinary inflammations, much to diminish the strength, and to deteriorate the constitution: this is particularly true of Bright's disease; and when this cachectic condition is produced, you will be forced to intermit your active antagonism to the local disease, for the purpose of obviating the still more imminent dangers resulting from an impoverished blood, and an exhausted fibre. Under such circumstances you must depend on an active counter-irritation, especially by setons to control the urinary inflammation.

Treatment of Diabetes Mellitus.—If you agree with me in the pathology of this disease, developed in my fourth lecture, you will easily be enabled to deduce what treatment is most appropriate. I look on saccharine urine as depending on a modification of the epithelial secretion produced by an asthenic condition of the urinary conduits. If this be the case, medicines calculated to exalt the tone of the secreting capillaries, are those best fitted to restore the natural function. Accordingly, experience tells us, that the balsams, ammonia, strychnia, and other excitants, are the medicines found most beneficial, when the perspiratory secretion is suppressed; when, on the contrary, the functions of the skin continue unimpaired, much benefit is often derived from the internal use of chalybeates, alum, sulphate of zinc, or other metallic astringents. The whole system commonly shares either directly or consecutively in the debilitated condition which exists in the capillaries of the conduits, and it is therefore most desirable to employ every dietetic means calculated to increase the patient's strength. It is well, therefore,

to give a moderate proportion of animal food, porter, &c., as much as is consistent with the proper exercise of the digestive functions; but from the exclusive animal regimen recommended by some, I have seen decidedly injurious results, but never any lasting benefit.

Treatment indicated by Purulent Deposits.—The urinary mucous membranes pour out pus when in a state of asthenic inflammation; and this circumstance sufficiently indicates the appropriate treatment. Tonics are the medicines chiefly to be relied on in these cases: decoction of the leaves of chimaphila corymbosa, diosma crenata, or arctystaphylos uva ursi; or of the root of cissampelos pareira; combined with mineral acids, will usually be found serviceable: chalybeates are also often of efficacy in these cases.

Treatment of Hæmaturia.—We shall therefore confine our attention to vicarious and essential hæmaturias. I have told you that the seat of vicarious hemorrhage occurring in the urinary organs, is usually the lining membrane of the bladder. These cases you treat in the usual manner that other vicarious hemorrhages are combated. The most efficacious treatment of essential hæmaturias consists in the exhibition of astringents, such as tannin, or styptics, such as oil of turpentine: the use of the latter is very apt, however, to convert the hæmaturia into a nephritis; but in this case the reaction of the urine with litmus paper affords a most accurate test, for pointing out the critical time when you should stop the exhibition of the medicine, and cup the loins.—Condensed from *Dublin Hospital Gazette*, Jan. 1, 1846.

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17. *Latent Endocarditis with large deposit of Lymph upon the Valves of the Heart.*—(*Dublin Medical Press*, April 29, 1846.)—Dr. Bellingham communicated to the Surgical Society of Ireland (April 18th, 1846) a case of extensive inflammation of the endocardium unaccompanied with any symptoms during life calculated to attract attention, and in which, although a very large deposit of lymph was found on the valves and orifices of the heart, almost every sign of obstruction to the circulation was absent.

The subject of this case was a female aged 40, admitted into St. Vincent's Hospital the last of March. She had formerly been in good circumstances, but after the death of her husband had suffered many privations. Latterly she had earned her livelihood as a visiting governess, but within the last three months she had been in a great measure confined to the house, and from this period she dated her illness, the first symptoms of which were debility and dyspnœa, followed by œdema of the lower extremities.

On admission the lower extremities were œdematous up to the knees; there was also slight effusion into the cavity of the abdomen. She complained principally of debility and of difficulty of breathing in the horizontal posture; the countenance was sallow and anæmic. She had never suffered from palpitation, cough, or pain in any part of the chest; there was little or no dyspnœa in the semi-erect posture, no lividity of the face, no paroxysms of dyspnœa; the pulse was 120, compressible, but without intermission or irregularity.

On examining the chest the apex of the heart was seen to beat in its usual situation; the action of the organ was perfectly regular, but more rapid than natural; its impulse short and abrupt, as in nervous and anæmic cases; no pulsation in the jugular veins; no unusual action in the large vessels of the neck; no increase of dulness on percussion. On auscultation the sounds of the heart were regular; no bruit de soufflet or other abnormal sound could be detected in any part of the præcordial region.

The patient died about ten days after admission into hospital, no material alteration having taken place in the symptoms.

Post-mortem examination.—The heart (which was exhibited to the meeting) was rather larger than the closed hand of the subject; when laid open, its auricles and ventricles were full of very black blood in loose coagula; there were no fibrinous clots. On removing these, and examining the mitral orifice from the left auricle, it is seen to be in a great measure closed up by a large mass of firm, white lymph, which lies against the aperture, and is strongly adherent. The mitral valve, as seen from the left ventricle, is edged with irregular masses of lymph of a similar character. Upon the right auriculo-ventricular orifice smaller masses of lymph are seen, which here have more the character of vegetations; and upon the ven-

tricular aspect of each of the semilunar valves of the aorta a similar deposit is seen. The pulmonary valves were healthy.

Some recent effusion was found in the abdomen; the liver was larger than natural, and a section exhibited a nutmeg character. The right kidney was slightly contracted, its capsule thickened and opaque, and a section exhibited the appearance seen in an early stage of Bright's disease. The urine had been examined during life and found not to be albuminous.

Observations.—This case appears to be remarkable in two respects—first, for the very large amount of lymph deposited upon the valves of the heart; and secondly, for the almost total absence of general and physical signs. The deposit upon the valves was recent, must have taken place comparatively quickly, and ought to have caused considerable impediment to the circulation through the cavities of the heart, yet if we except dyspnœa and anasarca, no signs of any obstruction to the pulmonary or cardiac circulation were present; there was neither palpitation, cough, irregularity, nor intermission of the heart's action; the dyspnœa was little urgent, and was not apparent in the semi-erect posture—in fact, it had not at all the characters of the dyspnœa which accompanies obstructive disease of the valves, but was rather such as is seen in anæmic and nervous individuals. The action of the heart was hurried but perfectly regular, and no abnormal sound could be detected in any part of the præcordial region; the pulse also was perfectly regular.

The patient never had rheumatism, and had laboured under no acute illness previous to her admission into hospital. As there was no indication of disease in any important organ, the heart was several times examined, but the signs yielded by auscultation and percussion were only such as are exhibited by patients labouring under anæmia and debility.

The only mode of accounting for the absence of the usual signs of obstructive disease of the valves of the heart which appears to be admissible in the present case is, that the amount of blood in the system was small, and the debility under which the patient laboured prevented her from using any exertion; hence the heart's action was never excited, and its cavities were not unusually distended or overloaded with blood at any time during her residence in hospital.

Dr. H. Kennedy thought the absence of bruit in this case might be accounted for. It had been lately ascertained—and indeed the fact was stated some years ago by Dr. Elliotson—that in the advanced stages of left auriculo-ventricular contraction, the bruit which had at first existed, disappeared, in many cases at least. Now, in the present instance, the state of the parts—though the result of acute disease—was exactly analogous to what occurs in chronic disease; for this opening was all but closed by the effused lymph. As to the aortic opening it would be observed that the actual edges of the valves were free, and that the lymph deposited there was very soft; and when to all this was added the weak state the patient was in while under observation, there appeared quite enough to account for the absence of all bruit.

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18. *Enormous Hypertrophy of the Heart.*—Dr. Croker King exhibited to the Dublin Pathological Society (Dec. 6) the heart of an individual 29 years of age, which, when emptied of its contents, weighed *forty-four ounces and a half*, a weight exceeding that, it is believed, of any case hitherto recorded.

The case came under Dr. King's care three years and three months ago; the disease at that time had existed for six years and a half, and was supposed to have originated in pleuritis; however, on particular inquiry into the symptoms, Dr. King considered that the suspected pleuritis might, in fact, have been pericarditis, and this view was completely corroborated by the post-mortem examination.

On examining the chest, a dull sound was elicited over a surface extending from the second left rib downwards to the ninth, and latterly from the right of the sternum to a line falling perpendicularly from the centre of the left axilla. On applying the ear to this surface, the parietes of the chest were struck with such violence by this immense organ, that the examiner received a forcible, and, he might add, disagreeable percussion. A confused muffled sound, like that of a prolonged muscular bruit, was heard, as also a very loud double souffle, replacing the ordinary sounds of the heart, and most distinct over the origin of the aorta, which it was calculated was situated higher up than usual, in consequence of the altered position of the heart. Pulse strong, vibrating, and incompressible.

The individual was of spare habit, and had always been so; muscular system indifferently developed; skin fine and smooth; had altogether a pale, bloodless appearance.

The life of the unfortunate subject of the above affection, was rendered miserable by paroxysms of the most fearful description, the approach of which was indicated by a sensation of general nervousness, followed by a peculiarly distressing weariness of both upper and lower extremities. The heart, at all times tumultuous in its pulsations, now beat with increased violence, and the patient experienced a fearful constriction in the chest, as if the sternum and vertebral column were forcibly approximated, and a sensation as if red-hot wires extended down the arms to the extremities of the fingers; and during the continuance of the attack, though suffering from the most distressing fatigue, he was unable to sit down. The position which afforded most relief was obtained by forcibly extending the spine and raising the arms, so as to allow of the great pectoral muscles being brought into forcible action, and enabling them by acting on the ribs to diminish the sense of constriction in the chest. The paroxysm being fairly established, the appearance and position of the patient were striking, and expressed an amount of suffering which Dr. King believed to be unequaled: the head thrown back, the neck extended, the entire spine bent in a curve backwards, like an exaggerated state of opisthotonos, the arms elevated at right angles from the body, the fingers expanded and rigid, the dark and prominent eye, the marked projection of the thyroid cartilage from the forcible extension of the neck; the violent action of the heart absolutely causing the individual to vibrate at each pulsation; the carotids bounding and throwing forward the integuments of the neck; the violent distension of the superficial arterial branches, enabling their course to be traced; in fact, so general was the arterial dilatation, that at each beat of this powerful heart, the individual appeared to undergo a general enlargement, and thus to resemble one enormous aneurism.

Coupling with the above, the expression of the patient's countenance, the suppressed breath, the perspiration, which, at first, stood in large drops on, and ran down the face and neck, the whole embodied a scene which *might* possibly be depicted with the pencil, but defies the pen.

These paroxysms were induced by the slightest circumstance; a cause which from its unimportance, could scarcely be considered capable of producing the slightest mental disturbance, being capable of giving rise to them. Such as receiving a visit from even his most intimate friend; at one time drinking, at another eating, appeared to be an exciting cause; and so much did this unfortunate gentleman dread the occurrence of a paroxysm, that I have known him to remain for several days without food, dreading the consequence of taking it. The paroxysms could frequently be warded off by occupying his mind, with any circumstance calculated to fix his attention; and over and over again have I succeeded in doing so by such a stratagem.

All through this case the most marked relief was experienced from stimulants; narcotics and antispasmodics: whereas any treatment calculated to reduce or depress was injurious, and appeared to favour the frequent recurrence of the attacks. So great was the relief experienced by the patient from the use of stimulants, that some years ago, without any pleasure in intemperance, or wish to indulge in intoxicating liquids, he gradually increased his potations to 16 or 18 tumblers of punch daily: however, he soon became sensible of the injurious effects of so much alcohol on the system: an attack of delirium tremens determined him to abandon such habits at all risks. He accordingly substituted opium, the dose of which he was equally anxious to limit, which, with some exertion, he kept down to one ounce and a half of the tincture daily; the other preparations, the acetum, black drops, or the salts of morphia, had not the same effect as the laudanum; the doses should be larger in proportion, and even then, on account of the absence of the spirit, they were not as efficacious.

It is worthy of remark that during the entire progress of the above case, there was no evidence of interrupted circulation, *no dyspnœa*, no venous nor capillary congestion: anasarca certainly set in towards the close of the case; it had not extended above the hips.

This individual was found dead in his bed a few mornings ago; he was seen

alive an hour before; did not make any complaint, but, on the contrary, stated that he had passed a good night. The autopsy did not reveal the immediate cause of death, which K. attributes to syncope; it had evidently been very sudden; *the body* was found in the position he usually adopted during sleep; the clothes were not in the least disturbed.

In the progress of the above case a variety of symptoms of the highest interest were manifested; but as the details of the case have already occupied more time than he intended, Dr. King would conclude by merely drawing attention to the pathological specimen on the table.

The heart, taken as a whole, has attained an unusual size, partly owing to dilatation of its cavities, but, principally, from hypertrophy of its substance—auricles normal—the right ventricle is dilated, the walls do not appear to be hypertrophied—the left ventricle is much dilated, its walls hypertrophied—a similar change has taken place in the septum ventriculorum—the aortic valves are the seat of cretaceous deposit which almost entirely fills up their concavities, and in one instance has penetrated the substance of the valve and formed an attachment to the adjoining mitral valve: the aortic opening is, however, perfectly free—the blood enjoyed uninterrupted egress from the heart: pericardium universally adherent to the surface of the heart by adhesions, fibrous, and evidently of long standing. In the situation where the serous layer is reflected from the heart on the great vessels, it was lifted up by a subserous effusion of the depth of half an inch.—*Dublin Hospital Gaz.*, Jan. 1, 1846.

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19. *Slow Pulse from Cardiac Disease.*—Dr. Stokes exhibited to the Pathological Society of Dublin (Dec. 6, 1845), a specimen which he remarked was calculated to throw some light on the symptom of slow pulse. The society was aware, that until lately, this symptom was considered as dependent upon cerebral disease; but the progress of pathological science had latterly demonstrated that slowness of the pulse frequently resulted from cardiac lesions.

The patient who manifested the symptom referred to on the present occasion, entered the Meath Hospital some months ago, suffering from general debility, cough, and dyspnœa, but without any suspicion that he was labouring under an affection of the heart. He did not complain of cardiac pain or palpitation; and it was only the character of his pulse which drew attention to the central organ of the circulation. The pulse beat steadily between 35 and 40 in the minute. He presented no cerebral symptoms whatever; and it was principally for the purpose of observing the peculiarity of his pulse, that he was retained in hospital. He exhibited the yellowish anemic appearance of senile phthisis; and gradually sunk.

Dr. Stokes was enabled to report the cardiac phenomena which accompanied this remarkable slowness of the pulse. There was an increased extent of dullness; and upon applying the stethoscope, a bruit could be heard precisely analogous to that usually ascribed to mitral regurgitation: but this bruit became more audible upon ascending the sternum, until it became loudest just at the junction of the cartilage of the second rib, with the sternum on the right side. This latter character seemed to indicate aortic valve disease; but then the bruit was confined to the first sound, the second sound being distinct and defined On the whole, Dr. Stokes was inclined to regard it as a case of mitral valve disease, and to account for the aortic bruit by the anemic condition of the patient.

The autopsy developed that the valves affected were really the aortic; the mitral valves were perfectly normal. But the lesion of the aortic valves did not permit of regurgitation; water poured into the aorta was perfectly retained; the disease consisted in a considerable narrowing of the orifice; the lining membrane of the artery was also to a slight extent diseased. The heart itself was soft and flabby: it could not be called a fatty heart, but evidently contained a greater quantity of fat than usual; it was manifestly a weakened heart.

In the disease of the aortic valves, so well described by Dr. Corrigan, an aortal bruit exists in the second sound: the present was a disease of the aortic valves, but without any bruit replacing the second sound: but there was in this case no regurgitation; so that we may modify the diagnosis of aortic valve disease in the following manner:—When in organic lesions of the semilunar valves of the left

side of the heart, regurgitation is not permitted, there may be a bruit confined to the first sound.

Mr. Adams, in a paper published in the fourth volume of the Dublin Hospital Reports, mentions that slow pulse often accompanies fatty degeneration of the heart. In the weak and softened heart of typhus fever, first described by Dr. Stokes, the pulse is not uncommonly very unfrequent. But weak heart does not always produce slow pulse; in the debilitated condition which frequently follows inflammation of the organ, the pulse is usually very frequent. In fact we may lay it down as a pathological law, that when irritation accompanies a weak state of this muscle, the pulse is frequent and feeble; while a feeble heart produces a slow pulse.

Dr Adams states in the paper alluded to, that patients affected with fatty heart, are especially liable to apoplectic attacks, not followed by paralysis; a form of apoplexy which Dr. Stokes believes seldom to occur under other circumstances. There was nothing of the kind, however, in the present case; and it was an instance of slow pulse, unconnected with any cerebral disease, and manifestly depending upon cardiac lesions, that he regarded it as principally interesting.—*Ibid.*

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20. *On the Curative Medication of Intermittent Fever.* By M. Bretonneau.—A sort of drunkenness, more or less painful, produced by a single and suitable dose of sulphate of quinine, repeated, if necessary, two days afterwards, suppresses for eight days *simple* intermittent fever.

In the same way, that with a person who is in the habit of intoxication, we find that much wine may be taken without producing this condition; so we every day see individuals affected with ague taking great quantities of quinine, without the fever becoming suppressed, or its return being prevented.

M. Bretonneau agrees with the Jesuits who first imported cinchona, and learned how to adminisier it; and with Torti, who for thirty years practised in the hospital at Tours, that every sufficient dose of bark loses its febrifuge power by fractioning it, exactly as a dose of wine loses its intoxicating property by being divided.

It has been stated that the prolonged administration of many doses, whose sum altogether amounted to several efficient doses, has completely failed. M. Bretonneau has seen a quartan fever, which had resisted two ounces of bark, yield to two drachms of the same medicine; but the two drachms were given at once, while the two ounces were taken in very small quantities at a time, and during fifteen days.

Small doses, which habituate a patient to the action of cinchona, injure the beneficial results of adequate doses; they hurt the digestive apparatus, and render the febrifuge intoxication more difficult to obtain.

M. Bretonneau corroborates the statements of Sydenham and Morton—that the dose of bark which has suppressed a paroxysm, if repeated before the supposed epoch of its return, will prevent it; and moreover, that the immunity thus procured may be prolonged by renewed doses exhibited at gradually lengthened intervals, until a permanent immunity from relapse becomes established. The progression recommended in the giving of these preservative doses is the following:—A second dose equal to that which suppressed the fever is to be exhibited, according to the nature of the fever, on any day from the first to the sixth interval, then to be repeated after intervals of 7, 8, 9, 10, 12, 14, 16, 18, 22, 30 days. The best time for giving each preservative dose is immediately after a light dinner; and the first dose had better be given shortly after the decline of the suppressed access, so as to be as distant as possible from the next threatened paroxysm. A relapse will render it necessary to renew the treatment from the commencement. The preservative doses should be approximated if it is found that the accesses become more frequent.

Unusual exercise, the prolonged impression of cold, indigestion, purging, &c., provoke the return of the fever which ordinarily, with the precautions indicated, does not return till spring. Occasionally, at Tours, the fever which had been suppressed, but its relapse not guarded against by the preservative treatment mentioned above, was accustomed to become renewed during twenty or thirty months.

M. Bretonneau has observed that an adequate dose of sulphate of quinine commonly produces vertigo and noises in the ears; subsequently, at a period more or less elongated from the first effect, there frequently supervenes a febrile state which there is danger of confounding with a return of the intermittent fever. This sort of fever is of good augury. During its continuance the skin is hot, the pulse elevated, and this state corresponds to that condition of febrile reaction which it is so very erroneous to dread in paludial affections. With extreme sagacity, Dr. Bally discovered, in 1821, that in Paris agues became developed in the spring, in subjects who had spent the autumn in localities where the fever prevailed. Evidence the most irrefragable bore out this assertion, nothing similar having been observed in persons who had not left Paris. M. Bretonneau has found, that a fever developed under these circumstances has all the tenacity of the kind prevalent in the district where it was contracted.

From fifteen to twenty grains of the sulphate of quinine, or from three to four drachms of good cinchona, suffice to suppress the fever of an adult, and to keep it suppressed during eight or nine days. Many reasons lead to the belief, that it is useful that the necessary dose should not be exceeded.

Intermittent fever is endemic in the locality where these observations have been a multitude of times repeated; and the number of fever patients admitted into the hospital has been so great, that in this establishment, previously to the discovery of quinine, 1200 lbs. of cinchona have been prescribed in the course of ten years, and since that discovery, frequently 50 oz. of sulphate of quinine have been prescribed in the pharmacy during the three months of autumn.

If a serious and unusual symptom shows itself for the second time in the course of a fever, whose paroxysms have been in general but little marked; if a lethargic torpor, faintings, alvine evacuations, either bilious, or like the washings of flesh, or melanic; if a severe epigastric pain, a superabundant sweat, a marble coldness, shiverings, symptoms exceeding an ordinary severity, accompanied by prostration, nearly complete abolition of the pulse; if these symptoms become developed, and prolong the paroxysm beyond the previous term of its duration, the dose should be doubled and given before the complete decline of the paroxysm—the fever has now become *pernicious*. It is necessary to guard this large dose with a third of a grain of watery extract of opium, or four or five drops of wine of opium. If tolerance on the part of the stomach cannot be obtained, it will be necessary to inject the febrifuge into the rectum. The intestinal injection is most easily retained if it produces neither a sensation of heat nor cold, if it is deposited above the second sphincter—a region less excitable than that which is below it, if it is small in bulk (from three to four ounces), and if made to traverse a large pipe slowly; a mixture of two drachms of powdered cinchona and a scruple of sulphate of quinine is more easily retained than a solution of half a drachm of sulphate of quinine.

A moderately abundant and substantial diet aids powerfully the good success of preservative treatment. This is what Sydenham and Morton, one hundred and fifty years ago, expressly affirmed.—*Dublin Hospital Gaz.*, Dec. 1, 1845, from *Journ. de Méd.*, par Trousseau, March, 1845.

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21. *On the abuse of Alkaline Remedies.* By Prof. Trousseau. (*Journ. de Méd.*, March, 1846.)—The object of this paper is to caution practitioners against the abuse of alkalies. These remedies exercise an immense influence on the economy. If by their use the alkaline state of the blood is increased, all the secretions from that fluid are modified. The secretions which are naturally alkaline will become more so, those which are neuter will become alkaline, and those which are acid will become either less acid, or more or less alkaline. The presence of acids being one of the conditions for the digestion of food in the stomach, it cannot be a matter of indifference to neutralize the acids which the economy wants—for the transformation of fecula into glucose, for instance. The digestion of amylaceous substances becomes, therefore, incomplete, or extra-natural, if we may use the expression. The presence, also, of alkalies in the blood in due proportion, gives to this liquid the means of burning, to a certain extent, the carbonaceous elements absorbed in the process of digestion. An imperfect combustion gives rise, without doubt, to morbid symptoms; but a too great or too rapid combustion, on the

other hand, is not the less attended with inconvenience, as it gives rise to important mutations in the composition of the blood, and consecutively in the texture of the organs.

It is, therefore, under no circumstance, of unimportance to administer alkalies. Taken without any real indication for a few days, they only give rise to momentary disturbance; but taken in large quantity, they occasion a cachectic condition, followed by a deplorable state of emaciation. The ancients have admirably indicated the influence of alkalies on the composition of the blood: they had remarked, that it became more fluid, being paler than in the normal state; and that at last a cachexia became established, characterized by paleness, general puffiness of the tissues, and passive hemorrhage; moreover, they had also perceived that these symptoms were followed by emaciation. Within the last few years, the abuse which has been made of the mineral waters of Vichy and Carlsbad, in the treatment of gout, has proved the above fact. The abuse of alkalies has certainly done more harm than that of iodine.

How is it that physicians do not see that a remedy powerful to cure is also powerful to do evil? Alkaline remedies are daily administered with inconceivable indifference. A physician prescribes to a patient one or two months' use of the waters of Vichy, Carlsbad, or Ems, as he would barley-water to drink. Is it a matter of so little importance to change all the secretions of the economy? Other alterative medicines are wielded with more prudence. Mercury and iodine, for instance, are administered with care and precaution, because the danger which attends their use is known.

In conclusion, Prof. T. unhesitatingly states that the danger of alkalies is greater than that of mercurials, because the danger is less suspected, and that their administration is often only arrested when the health of the patient has been irreparably destroyed. This is not so often the case with mercurials, because the experience of three centuries has told us that mercury could not be taken long with impunity. It behoves us, therefore, to make generally known, both the immense utility and the extreme danger of alkaline remedies.

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22. *New Method of employing Muriate of Morphia for Neuralgia and Toothache.*—Dr. Ebrard, of Bourg, has employed with striking success in the cure of toothache, the muriate of morphia, in frictions, to the gum of the painful part. These frictions are made in the following manner:—

During the paroxysm, or in the evening, some hours after a meal, the patient should take upon the moistened extremity of his finger 13 milligrammes (one-fifth of a grain) of the muriate, and apply it for two or three minutes to that portion of the gum which is painful. Then, while inclining the head on that side, taking care not to swallow or eject the saliva, which holds the salt of morphia dissolved, he must allow free contact to take place between the saliva and the gum for five or ten minutes: this leads to the local absorption of the morphia. He may afterwards swallow the whole of the saliva. If there should be no relief, and symptoms of narcotism be absent after a period of two hours, the application may be repeated. This repetition, however, is rarely required.

If the toothache should reappear the day following, without any abatement of the suffering, and no symptom of narcotism be present, the patient may employ 37 milligrammes of the muriate (about $\frac{57}{1000}$, or one-half of a grain English) in two doses, with the same precautions, allowing an interval of about two hours to elapse between each dose. M. Ebrard has reported cases in which one or two applications of the muriate, in this way, sufficed to remove the toothache entirely, whether it depended on caries or simple neuralgia, without any alteration in the tooth.

In neuralgia affecting the forehead, he has found a most successful method of treatment to be that of causing the patient to take, like a pinch of snuff, from 25 to 50 milligrammes ($\frac{4}{10}$ to $\frac{1}{2}$ of a grain) of muriate of morphia. Simple as this mode of treatment is, Dr. Ebrard properly advises that great caution should be used in employing this powerful agent.—*Gaz. des Hôpitaux*, Jan., 1846.

It is proper that we should inculcate great caution in the use of this salt, which sometimes produces unexpected effects in small doses. One-fifteenth part of a grain in two doses, applied endermically, has caused most alarming symptoms

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in an adult female, and half a grain has produced dangerous effects. On no account should the dose be repeated if there be the least sign of narcotism.

23. *Rheumatic Paralysis in Nurses.* By M. Trousseau.—Women when nursing are subject to a kind of rheumatic paralysis. They complain of stiffness and numbness, with painful tension, in the superior limbs; the muscles of the forearms presenting a kind of tonic spasm. They cannot bend the arm without difficulty, and the object which they touch merely occasions a confused sensation. This form of paralysis deserves the name of rheumatic, from its great mobility. It leaves the arms to attack the legs, and when this is the case, the patient is obliged to look where she puts her foot in walking, as she does not feel the soil. When the legs become free the head is attacked. The patient has noises in her ears, swimming of the head, and stiffness of the jaws. The affection will then again leave the head to attack the upper limbs and so on. This malady easily gives way to bleeding from the arm, assisted by a few purgatives. What is singular is, that the blood presents the inflammatory buff without there being any appreciable febrile state.—*La Clinique des Hôpitaux des Enfans*, Jan. 1846.

24. *Glycerine in Squamous Eruptions.*—Mr. Startin in a clinical lecture (*Med. Times*, Feb. 8th, 1846,) introduces to the notice of the profession a new remedy for the cure of certain cutaneous diseases. This article is the glycerine, a substance first observed by Scheele, and which, though known for 60 or 70 years, had not been tried as a therapeutic agent until used by Mr. Startin. Its usefulness depends most probably on its property of resisting evaporation, even at a considerable temperature. Mr. Startin says that a common plate wetted with it may be kept in an oven, side by side with a joint of meat, till the meat is cooked, without any sensible diminution in the quantity of the liquid. Hence, when applied to the skin, it remains moist, forming a coating or varnish, not distinguishable from the ordinary secretion of the part. A lotion composed of half an ounce with ten ounces of water, effectually prevents the skin from becoming dry. When used pure, it makes the part stiff and uncomfortable, so it answers best diluted. It is also added with advantage to poultices, and even to baths. Mr. Startin speaks of its use chiefly in Psoriasis, Pityriasis, Lepra, and Ichthyosis, in all which he describes it as producing excellent palliative effects.

25. *On the Efficacy of large Purgative Clysters in certain forms of Obstinate Constipation of the Bowels,—together with a Series of Experiments upon Living and Dead Bodies, undertaken to determine the extent to which fluids may per annum, be injected into the Intestines.* By Alfred Hall, M. D. (*Month. Journ. Med. and Surg.*, Jan. 1846.)—The object of the author of this paper is to illustrate the efficacy of large injections,—from two to three quarts,—for the relief of obstinate constipation. He relates two cases in which the constipation had persisted for ten days and had resisted ordinary injections and the other usual means, promptly relieved by the injection of five pints of well boiled oatmeal gruel with butter and common salt. Some physicians being incredulous of the possibility of injecting fluids throughout the whole course of the large bowels. Dr. Hall instituted some experiments which demonstrate that fluids may be forced through the ileo-cæcal valve in the dead body, and in one case it seems to have been accomplished in the living. Dr. Hall properly insists upon these injections being administered by the medical attendants and in a slow manner, twenty minutes or longer being occupied in the injection of the quantity recommended.

We have, ourselves, been in the habit for many years of resorting to these large injections in certain cases of obstinate constipation and severe colic, and we can from sufficient experience, confirm all that Dr. Hall has said of the value of this therapeutic means.

26. *Croton Oil in Delirium Tremens.*—Dr. Prankerd recommends (*Prov. Med. and Surg. Journal*, April 29, 1846,) croton oil as a remedy for delirium tremens, and relates a case treated by him with it. Twelve drops of the medicine was given in less than twenty hours, and Dr. P. thinks with decided relief. He is of

opinion that the medicine acts in these cases as a direct sedative to the nervous system.

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27. *Hydrate of Lime in Diarrhœa.*—Simple syrup, saturated with hydrate of lime, has been employed by Dr. CAPITAINE as an antacid, in doses of from one scruple to half a drachm; and at the hospital Neckar, it has been given with much benefit instead of cow's milk in the diarrhœa of children.

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28. *Thoracic Percussion.*—M. LANZA, Prof. Clinical Medicine, at Naples, lately read to the Scientific Congress a paper on thoracic percussion, in which he endeavoured to determine the normal sounds produced by percussion in the human chest, more exactly than had been hitherto attempted. The results at which he arrived are, that the sounds vary, in the normal state, according to the constitution of the individual, and more especially according to the natural tone of their voice, which has an intimate connection with the state of the thoracic organs. Thus, for instance, in three healthy individuals, of whom the one has a *tenor* voice, the other a *bass*, and the third a *baritone*, it may be certainly assumed that percussion will yield a different result in each. In the first, the sound will be similar to that produced in striking a perfectly empty cask; in the second, the sound will be more masked, as if striking a cask filled with raw silk or cotton; in the third, the sound will be a mean between the two former, and the more his voice approaches to the acute tone, percussion will bring out a sound, at the summit of the chest, having a character approaching to that of the tenor. If, on the other hand, the voice has an inclination towards the bass, then the base of the thorax will yield the loudest sound on percussion. So that an individual being given, M. Lanza, without hearing him either speak or sing, can, by the sound elicited by percussion, predict the tone, quality, and extent of his voice. M. Lanza has made an immense number of experiments on this interesting question, the clinical application of which is easily foreseen; for if it be true, that the normal sound of the chest varies according to the original form of the tissues, that is to say, according to the constitution, then the anormal sounds elicited by percussion must, in order to appreciate the differences, be judged of relatively to the *type* of the individual. From all this it follows, that there is at least reason to examine anew the opinions at present received regarding percussion, in the study of diseases of the chest.—*Annales de Thérap.*, Dec., 1845.

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29. *Arsenic in Intermittent Fever.*—M. BOUDIN, chief physician to the military hospital of Versailles, addressed to the Academy of Medicine, of Paris, (August 2d, 1845,) a communication relative to the administration of arsenic for the cure of intermittent fevers. M. Boudin states that after having taken himself arsenic in a therapeutic dose for a long time, and having thus proved its safety, he administered this substance to nearly 3000 patients labouring under intermittent fever. The greater number of these patients had previously taken quinine without benefit, and some of them had taken it in large doses. All these patients indiscriminately and without selection, took the arsenious acid. They had contracted the fever in all parts of the world, in Senegal, in Algiers, in America, in Italy, in France, in Syria, &c. They have been treated in the presence of many physicians, who have carefully watched the experiments, so that the mode of treatment by arsenic has thus stood the proof of time, place, number of patients and even of a number of physicians. The success, he asserts, has been almost constant; the duration of the treatment very short, and relapses extremely rare. As to ill effects, none have occurred which could be attributed to the use of this medicine.

M. Boudin, taught by long experience, has abandoned the use of the arseniates. He gives the arsenic acid, in solution, in the following formula—℞.—Acid. arsenic, 5 centigr., (gr. j): Aq. distill., 500 gram., (℔ j). He gives 100 grammes of this solution, or one-fifth of a French grain of the arsenious acid, as a medium dose. This he administers three hours before the expected paroxysm. In cases where the fever is very obstinate, he triples the dose, but gives it in three doses, at intervals of two hours between each, the first to be taken seven hours before the expected paroxysm.

He usually continues the medicine in smaller doses eight or ten days after the cessation of the paroxysms.

M. B. finally notices and refutes the various objections which have been made to the use of this medicine. *Journ. de Med. et de Chirurg.-Pratiques*, Oct., 1845, and *Revue Méd.*, Sept., 1845.

These statements of M. Boudin seem to be altogether full and conclusive as to the superior efficacy of arsenic in the cure of intermittent fever; and to the young practitioner, at least, the point will appear to be incontrovertibly settled. Unhappily such a sweeping conclusion, as every practitioner of large experience will perhaps anticipate, is not well founded. Our own experience has certainly satisfied us that such is the fact, and we find in the *Journal de Médecine de Bordeaux* some cases, collected by Dr. HENRY GINTRAC, which are little favourable to use of the remedy, and as they were observed in the service of his father, Prof. Gintrac, a practitioner well known for his skill in observation, they are entitled to all confidence.

Dr. Gintrac states that in the summer of 1842 Prof. Gintrac treated 33 cases of intermittent fever with arsenic, according to the method of M. Boudin. These cases were carefully watched, notes of them kept; it was ascertained that the medicine was regularly taken, nevertheless 6 cases only were cured.

The report made by M. Boudin to the Academy of Medicine, of his extensive trials and extraordinary success with arsenic induced Prof. Gintrac to repeat his experiments, and in September last he tried the remedy in 33 cases, following strictly the mode of administration recommended by M. Boudin. The following are the results, 1. Six patients were promptly and entirely cured. 2. In seven cases a remarkable modification of the fever was induced; the three stages were no longer distinct, the cold stage disappeared, but there remained a continued febrile condition, with a pulse of from 90 to 100, and warm skin; nevertheless this condition was relieved by hygienic measures alone, except in one individual who became anasarcous. 3. In four cases the paroxysm, after having ceased, recurred in a few days, and required the sulphate of quinine. 4. Finally, in sixteen patients the arsenic produced no sensible effect, and it was necessary to have recourse to the sulphate of quinine to effect a cure.

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30. *Treatment of Painter's Colic.*—An interesting memoir on this subject was read to the French Academy of Medicine, by M. SANDRAS, on the 26th of August last. In 1843 this physician, in conjunction with M. Bouchardat, proposed the moist hydrated persulphuret of iron as an antidote to corrosive sublimate, lead, copper, and arsenic. These physicians have since tried the same substance to remedy the ill effects developed by the preparations of lead, effects so common and severe, and for which such a host of remedies has been employed.

The persulphuret of iron is prepared by pouring, drop by drop, a neutral solution of sulphuret of iron into a solution of sulphuret of potassium. A blackish, gelatinous precipitate is formed, which is deprived of the excess of sulphuret of potassium, which washing and decanting, it is to be preserved under water in a well closed bottle.

The following is the plan of treatment for lead colic adopted by M. Sandras. The patient is first placed in a bath and thoroughly washed with soap to remove all the particles of lead which may adhere to the skin. Croton oil, castor oil, or some other purgative is then given him; and if it does not operate well it is to be followed by purgative injections. Lemonade is given to drink, and at night a dose of the aqueous extract of opium is administered to induce sleep and quiet the cramps. Finally, on the second or third day the patient is given, morning and evening, a tablespoonful of the persulphuret of iron, which is continued until the cure is completed.

Within a year M. S. has treated in this way 54 patients, all of whom were cured except one, and he died from typhus fever. Under this treatment he has never found the disease to persist and become chronic and terminate in paralysis. From physiological experiments, theory, and practical experience, MM. B. and S. recommend this mode of treatment as curative, and as the best prophylactic. *Journ. de Med. and de Chirurg. Prat.*, Oct., 1845, and *Rev. Med.*, Sept., 1845.

31. *Efficacy of Mercurial Frictions in Small-pox.*—Dr. Goblin in an article published in the *Journ. des Connaissances Médicales Pratiques* (Oct. 1845,) states that he employed frictions with mercurial ointment with success in the treatment of variola, during an epidemic which prevailed at Stains. Under this application, he says the pustules which commenced to form, were immediately arrested in their progress: when the pustules had become lenticular and red, they dried up and desquamated leaving only a slight reddish elevation, and finally when the pustules were about becoming confluent, they contracted from the circumference towards the centre, dried up, and after the crusts fell off, there remained only slight cicatrices which disappeared after the skin resumed its natural elasticity.

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32. *Rheumatism cured by Frictions with an Ointment of Ioduret of Potassium.*—M. Ebrard has employed with great advantage frictions with an ointment of hydriodate of potassium, in the treatment of rheumatism, and especially of lumbago. The ointment is composed of four parts ioduret of potassium, and thirty parts of lard. A case is related in which five drachms of this ointment employed in three prolonged frictions at two hours interval, completely cured the patient.—*Journ. de Méd. et de Chirurg. Pratiques*, Nov. 1845, from *Journal de Médecine de Lyon.*

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33. *Apoplexy in the Fœtus and New-Born Child.*—M. Lasserre has lately shown that the fœtus and new-born child are subject to cerebral hemorrhage like individuals who are more advanced in life. The effusion presents exactly the same anatomical characters. The first case which he observed was one of meningeal apoplexy, in which there were nearly one hundred grains of viscid blood effused into the cavity of the tunica arachnoides. The child was mature, and was born dead. M. Lasserre ascribed the effusion to pressure on the cord during labour, whereby the utero-fœtal circulation became interrupted. In the second case, effusion had taken place into the ventricles. The fœtus had reached five months and a half, and was born in a putrefied state. The blood, which filled the whole of the four ventricles, was in smooth, polished, irregular, but moderately firm coagula. In a third case, apoplectic effusion had occurred in the posterior part of the left hemisphere in a new-born child. This was followed by encephalo-meningitis. M. Lasserre concludes from the facts which have fallen under his observation, that cerebral apoplexy does not give rise to the same symptoms or produce the same functional disorder in the new-born child, as in the adult. In his opinion, also, it is not so speedily fatal.—*Lond. Med. Gaz.*, Feb. 1846, from *Journ. de Med. de Toulouse.*

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34. *Cephalæmatoma Neonatorum.*—In a private practice extending over the long period of twenty-six years, Dr. Doepp has observed this remarkable affection only thrice, while in the foundling hospital, during the space of eleven years, it has occurred in not less than 262 cases, and in all excepting two, the parietal bones, near their superior portion, were the seat of the disease. The average amount of cases was 1 in 190 of the whole children in the hospital: 11 post-mortem examinations were made, including 8 who died of other disorders when thus affected. The results of the dissections were the following:

a. In none of the 11 cases was any perforation of the skull observed, nor any effusion of blood upon the inner surface thereof.

b. All the 262 patients were brought to the hospital with the affection already existing, though many were not above a few hours old. But the tumour was often observed to increase in size after the arrival of the children at the hospital, at least during the first three days, after which no further enlargement took place, except in those cases were the tumour having been opened had again become distended.

c. It was only in nine cases of the whole number that Dr. Doepp could ascertain the nature of the labour. All the nine had been easy and every way natural, and the mothers were strong, healthy, and not overburdened with fat. Three were primiparæ; the previous children of the other eight had been perfectly free from any signs of this affection.

d. The cephalæmatoma seemed to be always beneath and separate from the scalp; it was a *tense* fluctuating tumour; the integuments were of normal colour,

and could, even in the most distended condition of the swelling, be freely moved backwards and forwards over its surface. The pulsation noticed by Naegele and others was never observed, nor did pressure on the tumour seem to cause pain to the infant. Its form was usually oval, but was sometimes altered by two or three tumours being placed in close apposition. The largest tumour that was observed in the hospital measured about four inches by three, and several were seen not larger than a hazelnut.

e. The hard ring around the tumour was never wanting, though at an early period of the affection it was less observable than afterwards. It was *most distinct* whenever the tumour was emptied by incision, and gradually disappeared then in about five days' time. Dr. Doepp carefully dissected two cases for the express purpose of ascertaining the true nature of this callous ring. After removing the external integuments, he found that the tumour was formed by the pericranium distended with blood. Upon incising the swelling and washing out the contents, he observed the callous ring to consist *solely* of a layer of coagulated blood, which formed all round at the point where the pericranium had been upraised from the bone. By a continuous stream of water this layer could be dissolved away, and with it the callous ring entirely disappeared. The pericranium was everywhere healthy, as was also the bone beneath. No appearances of inflammation could be detected in either.

Dr. Doepp does not, however, deny that, in certain cases when the tumour has been opened, and much suppuration has ensued, the bone may become carious, and thereby the exterior table of the skull with the diplöe may be destroyed. In such instances the circumference of the carious portion would necessarily present a sharp unyielding edge. In one skull in Dr. Doepp's possession the absorption of the diplöe appears to have commenced first, and the external table over the absorbed portion was depressed in the centre, but elevated at its circumference, so as to form a callous ring of true bone. The termination of this affection was almost always favourable. Two children died out of 265, and one of these from violent phrenitis, perhaps occasioned by cauterizing the interior of the tumour with nitrate of silver. The cause of cephalæmatoma, Dr. Doepp confesses himself unable to explain, and he is quite dissatisfied with all theories hitherto promulgated.

The treatment appears to have been simple and sensible. Fomentations were applied at first, but if no disposition to absorption manifested itself before the end of the second week the tumour was opened by a small incision, four or five lines in length, and the extravasated blood was pressed out. The fear of hemorrhage, so dangerous to a new-born weakly child, deterred Dr. Doepp from emptying the tumour at an early period, and he recommends that the operation, on the other hand, should not be delayed beyond the fortnight, as absorption of the bone will then probably commence.—*Brit. and For. Med. Rev.*, April 1846, from *St. Petersburg Med. Transactions*, vol. vi.

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35. *On the Periodic Nocturnal Cough of Children.* By Dr. Behrend, of Berlin.—This cough of little severity, but rather frequent and of a peculiar character, has not as yet been described by any author.

Symptoms.—This cough is most generally observed in spring-time and winter, but also frequently in autumn, rarely in summer; it seldom, if ever, occurs in children at nurse, but is observed in other children at all ages, and more frequently in boys than girls. During the day there is no cough, not even the vestige of catarrh, and, when put to bed, the child falls asleep quietly at the usual hour; but in the course of a few hours it becomes restless, and coughs violently before awakening; it commences to cry, and the cough becomes more and more severe, till, in some cases, it produces vomiting: after one or two hours of suffering the child again falls asleep, and passes the rest of the night quietly. The cough returns at the same hour the following night, and continues sometimes for weeks and months; at last it commences to diminish, and disappears completely and spontaneously: the fits become shorter in duration, and occur at a more advanced period of the night, so that the length of sleep enjoyed previous to its occurrence is gradually prolonged. The children are pale, easily fatigued, and troubled with cold feet towards evening; they take their food, and play, however, as usual, and

appear otherwise to enjoy good health. The nocturnal cough has frequently a catarrhal character, and is generally accompanied with mucous rattle; sometimes, however, it is dry, croupy, and whistling: the kinks are short, isolated and uniform, and may recur every five minutes, or extend only to one or two.

Diagnosis.—This periodic cough can neither be mistaken for croup, which has well-marked symptoms, nor for hooping-cough. The latter is almost always epidemic, and occurs as much during the day as during the night, and is always remarkable from a peculiar dyspnœa. In the periodic cough there is no true appearance of suffocation: the children do not awake suddenly, as in a fit of asthma or spasm of the glottis, but they awake slowly, after having coughed several times during sleep. It most nearly resembles catarrh or bronchitis, but is distinguished from these affections by the complete absence of physical signs, and by the nocturnal periodicity of the fits, followed by complete remission.

Etiology.—The author regards this cough as dependent on an affection of the nerves, perhaps the vagus, and grounds his reason chiefly on the symptoms, and on the circumstance that it has frequently appeared after an epidemic of hooping-cough, and whilst intermittent fevers were very prevalent among adults. This last remark has been made by several other medical men, whose attention was drawn to this cough by M. Behrend.

The prognosis is always favourable. In one case the periodic cough was followed by bronchitis; but this was probably merely accidental. In another case there was frequent epistaxis.

Treatment.—The disease is generally more troublesome than serious, and requires no active treatment. Gentle purgatives, such as manna, with tincture of rhubarb, given in the evening, and attention to diet, are to be recommended. A drachm or two of mindererus, in a little sugar and water, may also be given before putting the child to bed. One medical man found small doses of quinine, given at bedtime, of great service; another found slight irritation of the skin, chiefly by means of pediluvia, and friction of the soles of the feet with roasted onions, and even enveloping the limbs after the manner of Preissnitz, beneficial.—*Month. Journ. Med Sci.*, May 1846, from *Gaz. Med. and Journal der Kinderkrankheiten.*

SURGICAL PATHOLOGY AND THERAPEUTICS AND OPERATIVE SURGERY.

36. *Erysipelas of the Head.* By M. Chomel. (*Annales de Thérapeutique*, Jan. 1846.)—This disease, Dr. Rognetta states prevails at the present time in many of the Paris hospitals, and of so severe a character as to merit the attention of practitioners. The disease attacks sometimes the face, sometimes the scalp, and passes from one of these parts to the other. Young females are most liable to be affected. In one of M. Chomel's wards at the Hôtel Dieu, there are several of these cases; it is also met with in the service of M. Rayer and that of others.

M. Chomel has devoted a very interesting clinical lecture to this important subject, the principal heads of which are thus reported by Dr. Rognetta.

In most of the patients, the affection commences with shivering, followed by fever and delirium. In some the disease is preceded by a painful swelling of several of the glands in the neighbourhood of the jaw. When this appears in a subject, otherwise well constituted, and in good health, an attack of erysipelas in the course of three or four days at most, may, with certainty, be predicted. This remark, which we owe to Frank, has been verified by M. Chomel. In others enlargement of the glands comes on *after* the appearance of the erysipelas. To these preliminary symptoms there succeeds a swelling of one side of the face, with redness, tension, and pain, as in other kinds of erysipelas. The disease invades, by degrees, the whole of the face, and then extends to the scalp. The delirium and fever continue for several days. In some cases the disease commences in the scalp, and from that extends to the face. When confined to the scalp, the nature of the disease is easily overlooked: it may be mistaken for a rheumatic or neuralgic affection, in consequence of its not presenting the same characters as in other regions. The importance of a correct diagnosis in relation

to treatment, will be readily understood; for erysipelas of the scalp may terminate in death. Two or three cases of the kind have occurred to M. Chomel; the erysipelas originated spontaneously, could be traced to no traumatic cause, and in healthy well-constituted individuals, who had never previously been subject to the disease. It is generally believed that in such cases the disease extends to the membranes of the brain, as there are usually head symptoms from the commencement. This, however, according to M. Chomel, is not the case, because in the cases just alluded to, nothing whatever was found within the cranium; the brain, as well as its membranes, were healthy.

The following are the characters by means of which erysipelas of the scalp may be recognized. If there are enlarged glands at the roots of the jaw, there is a presumption that erysipelas is present, as has been already remarked. On separating the hairs as far as their roots, over the swelled and painful parts, the skin is found of a gray colour, slightly tinged with rose-red. This hue is not the same as that of the skin of the face, or any other part affected with erysipelas; but neither is it that which the scalp exhibits in the normal state. The difference may be recognized by examining of those portions still free from the disease, which are of a whitish hue. The second character to which M. Chomel attaches importance, is that of œdema. On making pressure with the fingers over those portions presumed to be attacked with the disease, pain and pitting of the tissues are produced; the impression remains as in all other kinds of œdema, and its presence may be ascertained by passing the flat part of the finger over the spot, when the elevated and circular edge, and the hollow of the impresion, will be felt. The disease progresses from one part of the scalp to another, the fever and delirium continue with more or less severity, and the face, in its turn, becomes affected. Should the disease not have been previously recognized, its nature now becomes evident. These observations are, no doubt, interesting; yet, it is difficult to comprehend why there should be delirium for such a length of time, and of so serious a character, unless we admit an affection of the membranes of the brain. M. Chomel endeavours to explain the fact by referring it to the irritation experienced, by the numerous nervous filaments, of the face and scalp. Dissection in other cases, however, has incontestably demonstrated the existence of a series of small abscesses within the orbit, the cranium, and in the neighbourhood of the orbit:—and the membranes, moreover, injected. (Piorry.) It must not be forgotten that in tissues where the ramification of the vessels is so minute, as in the membranes of the brain, inflammation does not always leave appreciable traces in the dead body, more especially if the disease has continued for any length of time, and blood-letting has been practised. Erysipelas, in its essence, is nothing more than a vascular inflammation, a capillary artero-phlebitis, which is transmitted to the lymphatics, or originates in them, as the latter have communications everywhere with the veins, whatever M. Serre may say to the contrary. We know, moreover, that external erysipelas itself does not always leave well marked traces of its existence in the dead body, and for the very reason, we repeat, that the disease is one of vascular inflammation, whose intensity may be sufficient to produce death, but not great enough to leave morbid secretions, as in other inflammations. We have thought it necessary to enter into these details, in order to account for the negative dissections of M. Chomel.

Another fact, of no less interest, adduced by M. Chomel, is one having reference to a symptom which is precursory to the extension of the disease. Every time the disease shows a disposition to extend from one point to another, there is produced, at the limit of its extension, a red elevation of the skin, of the thickness of a line and a-half, which is easily recognized. This kind of conterminous swelling indicates a disposition to extend, and, by means of it, the periods of shifting may be recognized, and, in its absence, the period of definite fixation. This double character is of importance, especially when we wish to determine the value, says M. Chomel, of certain remedies reputed to possess the power of limiting the progress of erratic or wandering erysipelas. With the view of determining the value of flying blisters, nitrate of silver, and mercurial ointment, M. C. applied them in those cases in which the elevation, of which we have just spoken, was present, but he never found them either limit or arrest the progress of the affection. The erysipelas, he says, always cleared the limits drawn by the

blister, nitrate of silver, and mercurial ointment, and continued its progress. Whence he concludes, there must have been some illusion; and that the success attributed to these means was the mere effect of coincidence, no attention having been paid to the condition just spoken of, and that, in such cases, the disease would have stopped naturally. M. C. has witnessed cases of erratic erysipelas, where the inflammation progressed as freely over surfaces which had been accidentally covered with a blister, as elsewhere. M. C. takes no account of the dynamic action of these remedies. They may, however, be useful by their antiphlogistic action, although they produce no effect in checking the progress of the disease.

At this point M. C. took a general view of other inflammations, particularly pneumonia, and taxed those who pretend to arrest such inflammations at their commencement, by means of repeated bleedings, as labouring under a gross delusion. Every acute inflammation, he remarked, whatever treatment is pursued, has four distinct periods through which it must pass, and which nothing can prevent:—viz., a first stage of more or less intensity; a relative progressive stage or period of increase; a stationary period; and a period of decline. The intensity and duration of these four periods may no doubt be abridged by efficacious treatment. but the disease can never be completely cut short, or strangled, as has been pretended. The same argument applies equally to erysipelas.

The treatment adopted by M. Chomel, in erysipelas of the head, consists in venesection, repeated or not, according to the intensity of the fever and the delirium; in saline purgatives repeated every day; blisters to the feet, flying sinapisms on the legs, and cooling drinks. One condition of great importance is that of keeping the patients nearly in a sitting posture in bed, so that the head is elevated; it is also kept uncovered for the purpose of preventing an accumulation of heat, and consequent congestion. All the patients so treated at the Hôtel Dieu have been cured. M. Rayer has adopted nearly the same principles, and has also found them to answer well. M. Chomel disapproves of the application of leeches either to the diseased region or its neighbourhood, in consequence of their bites favouring the extension of the erysipelas. He also disapproves of tartar-emetic, in consequence of the vomiting caused by it, and the augmentation, according to him, of the cephalic congestion thereby. In M. Chomel's eyes, tartar-emetic is a mere evacuant remedy; its dynamic action, the only intrinsic and efficacious one, he holds to be of no value. The neutral salts and castor oil appear to him preferable.

We may here mention, that we have seen M. Bouillaud treat erysipelas by means of repeated bleedings, and the free application of axunge to the inflamed tissues with good success. M. Mojon has found tartar-emetic in solution very efficacious as a topical antiphlogistic, when applied continuously by means of compresses. Its application in this form whitens the tissues, and abates the inflammation. If preferred, the solution may be used tepid, but it is better cold, and no risk is incurred by its application.

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37. *New Views in relation to the Etiology and Treatment of Phlegmonous Erysipelas.* (*Annales de Thérapeutique*, Jan., 1846.)—M. Gerdy has for some time past devoted attention to the interesting question of the etiology of phlegmonous erysipelas of the limbs, in consequence of the occurrence of many cases of this disease in his wards at *La Charité*. In the cases in question the erysipelas originated from a traumatic cause—being produced by contusion, with or without a wound in the fingers, hand, elbow, foot or leg. The disease first appeared as a simple erysipelatous redness around the wound, then the part began to swell, and assumed a phlegmonous character, the erysipelatous redness extending with the swelling. M. Gerdy attributes the disease to the naturally declined position of the extremities, to the stagnation of the blood in the peripheral capillaries of the latter, in consequence of which the contused part first becomes superficially inflamed under the form of erysipelas, and, subsequently, more deeply under that of phlegmon; and, if not speedily remedied, by the means we are about to indicate, the disease passes into that of suppuration, the consequence of which is, the formation of dissecting abscesses, and separation of the integuments to such an extent as to necessitate amputation or produce death. Erysipelas seldom assumes the phleg-

monous or suppurating character in the head or neck; and for the reason, says M. Gerdy, that the cause we have first indicated does not operate there, the venous circulation being free and descending. Thus, then, according to M. G., erysipelas of the extremities readily passes into that of phlegmonous suppuration, in consequence of the weight obstructing the progress of the circulation upwards, and to the same circumstance may be attributed the peculiarly serious character of punctures of the fingers, which are apt to terminate in panaris or phlegmon. Dupuytren endeavoured to explain the difference, in course, of erysipelas in the head, from that in the extremities, by a peculiarity in the anatomical distribution of the nutritive vessels in the two parts. The true reason, however, says M. Gerdy, is to be sought for in the laws of gravity as applied to the circulation.

As a consequence of these views, M. Gerdy considers that an essential part of the treatment consists in keeping the extremity in an elevated position, so as to prevent stagnation of the blood, and assist its circulation upwards. The good effects from this mode of treatment are most striking. In fact, under the influence of position alone gradual amendment will be observed, or even a complete cure; should the disease have a tendency to descend, a too elevated position may cause it to retrograde, as we lately witnessed in the wards of M. Gerdy, in a case of phlegmonous erysipelas of the fore-arm, the result of a contusion of the elbow; the disease was descending, and had invaded the superior half of the fore-arm, when the patient had the resolution to keep the arm for a long time suspended, by means of a cord attached to the roof of the bed. Next day the disease had disappeared from the fore-arm, and had extended to the posterior part of the arm; the member had then to be placed in a less elevated position. It must be observed that we are not now speaking of simple erratic erysipelas, for we know that phlegmonous erysipelas extends, without leaving its primitive place of origin, and does not become displaced. We have seen very many cases of this kind undergo great amendment in M. Gerdy's wards, from the simple fact of putting the limb into an elevated position, by means of pillows, and properly adapted inclined planes. All this does not, of course, supersede the application of both local and general means of treatment. M. Gerdy has recourse, at an early period, to deep incisions, by which means he relieves the engorged tissues, and predisposes them to speedy resolution; but, we repeat, these remedies are of little avail, unless the position of the limb be, at the same time, attended to. By an early recourse to this mode of treatment, sinuses, and the formation of large abscesses, are avoided; or if suppuration does occur, it is confined and circumscribed, and has more the character of that which takes place in the head and neck, under similar circumstances. These remarks are the result of lengthened clinical observation, and may be verified by any one, such cases being of every day occurrence. The chief point is the influence of gravity in aggravating the disease, and the indications which may be drawn from this in the way of prophylaxis and cure.

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38. *Substernal Goitre.* By Dr. GIEHRL.—There is a species of goitre as yet very little known, which consists in the prolongation of one of the lobes of the thyroid gland, which extends under the clavicle into the cavity of the thorax, where, by its development, it causes death by compression of the viscera contained in this cavity. A case somewhat analogous is reported by Boerhaave, of an admiral who died with symptoms of asthma, in whom the thymus gland was found much hypertrophied.

The first observation, described by Dr. Zingl of Munich, was that of a female servant, who was affected with dyspnœa and palpitations of the heart, which were increased when she moved about: at the same time the thyroid became swollen, and varices formed in the neck; she suffered frequently from catarrh and sharp pains in the side; presently the dyspnœa became extreme, the cough more severe, and the palpitations more obscure, but extending over the whole chest; frequent lancinating pains through the thorax; at length extreme orthopnœa, delirium, and death. At the autopsy, the thyroid gland in the neck was found a little increased in size, but it extended under the sternum as far as the pericardium. This prolongation, which was hard, almost scirrhous, and traversed by varicose veins, weighed more than two pounds.

The second instance, which was also observed in the hospital at Munich, is that of a man of forty years of age. He suffered from severe dyspnœa; the face was swollen and red; the pulse was full and hard; he had cough, obscure palpitations of the heart, lancinating pains in the chest; the respiratory murmur was indistinct on both sides, but chiefly obscure in front; the neck was hard, without distinct goitre; there was no œdema of the lower extremities; small blue spots similar to petechiæ appeared on the arms subsequently to two venesections; extreme orthopnœa, with anxiety and cold sweats; he died three days after his admission into the hospital. On opening the chest, a large hard tumour was found occupying nearly the whole chest, covering the pericardium, as far as the diaphragm, to which it was adherent. Above, it extended under the clavicle to the left lobe of the thyroid gland, of which it was evidently a prolongation. It had the appearance and consistence of a hepatized lung; on cutting into it a turbid fluid escaped, whitish and viscous; the two carotids, the descending vena cava, the par vagum and sympathetic nerves on both sides were surrounded and compressed by the tumour. It is probable that the tumour had existed for a long time, and had not caused any alarming symptoms; but in consequence of inflammation set up in its substance, it had attained a considerable size, and had thus interfered with respiration and circulation, especially of the superior vena cava; hence the symptoms observed before death.—*Gaz. Méd. de Paris*, 15 Nov., 1845, from *Neue Medicinisch Chirurg. Zeit.*

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39. *Some Remarks on Wounded Arteries, Secondary Hemorrhage and False Aneurism.* By Robert Liston, F. R. S. (*Proceedings of the Royal Med. and Chirurg. Soc.*)—The author states that the subject of wounds of arteries, with the consequences of such wounds, immediate and remote, has possessed, and always must possess, great interest in the eyes of the surgical practitioner. His impression, until very lately, was that no subject had been better handled or was better understood by surgeons generally, and that all writers were pretty well agreed as to the rules which ought to guide the practice in such cases. When, however, we hear of an operation being performed upon a large vessel on account of a recent false aneurism, after careful consideration of all the circumstances of the case by six surgeons, and when there is reason to believe that, at least, an equal number of respectable practitioners (not, however, engaged in the case) were ready to declare the practice pursued very wrong, and contrary to the established principles of surgery, and thus, had the vessel not been tied, the patient might now have been alive, it is surely desirable that an opportunity should be afforded of discussing this subject, and, if possible, settling the question in dispute. The author then proceeded to relate very shortly the leading facts of the case, and to support the line of practice pursued, by reference to, and relation of, some similar instances.

Mr. S. æt. 28, an exceedingly corpulent person, who had, it appears, lived excessively freely for a series of years, was wounded on 23d of May, 1845, by a pistol-bullet. It entered the upper and outer part of the right thigh, and passed out in the middle of the fold of the left groin; thus traversing the course of the femoral vessels. The flow of blood, more especially from the wound on the right side, was described to have been impetuous and profuse. It was thrown in jets to a considerable distance. The patient was found by Mr. Jenkins, of Gosport, in an almost lifeless state, and he was with great difficulty recovered from the syncope and depression. A considerable swelling soon supervened over the lower part of the abdominal parietes from extravasation of blood.

May 27th, the seventh day from the receipt of the injury, the swelling in the right groin began to increase in size, and distinct pulsation was then, for the first time, perceived in it. The tumour went on increasing gradually, and it had gained much more in bulk on the tenth day, when I first saw him, than it had done on any of the preceding ones. It was of an oval form, and elastic, but firm, as if it was partly made up of coagulum and liquid blood; but it could not be at all diminished in bulk by uniform and continued pressure. The skin covering the tumour was discoloured, thin, and incapable of bearing pressure. Pulsation was strong and distinct in all its parts. The opening on the right hip was filled with a dry depressed slough; the wound in the left groin, a jagged slit, was closed by a

very thin cicatrix. The patient's countenance was blanched and waxy, and his pulse quick and feeble. He had, in short, all the appearances of a person who had lost a great quantity of blood.

The nature of the case was very apparent. A large false aneurism, not well bounded, rapidly increasing, and arising from a wound of the femoral artery, or some branch divided close to its origin, had to be arrested, otherwise the patient must be left exposed to the risk of perishing suddenly, and at no distant period. After consultations, on the evening of the 30th, and morning of the 31st, the external iliac artery was tied, with the loss of not more than a tablespoonful of blood, and with the immediate effect of arresting the pulsation, and removing, in a great measure, the tension of the tumour. Symptoms of peritonitis supervened the evening of the second day, and on the following afternoon the patient sunk.

The author subjoined an account of the post-mortem examination by Dr. Allen, of Haslar. The course of the bullet was traced from the outside through a dense layer of fat, about two inches in thickness. It had divided one of the superficial branches of the femoral artery, about half an inch below Poupart's ligament, and about an inch from the main body of the femoral artery, which had caused a false aneurism. The sac contained about three ounces of blood. No other artery appeared to have been wounded. A considerable quantity of sero-purulent fluid was found in the abdominal cavity, and patches of acute inflammation were observed on the intestines. The peritoneum adjoining the wound of the operation was inflamed. It had not been injured by the knife. The ligature had been properly applied to the external iliac artery. The abdominal viscera were healthy, but loaded to an extraordinary degree with fat. There was some enlargement of the right limb, but apparently no mortification. The femoral artery was pervious. The blood in the aneurismal sac was firmly coagulated, and there was no mark of recent oozing from the injured artery. The ball had passed immediately over and along the course of the artery for about half an inch before dividing it. The artery, although not actually detached, would not have borne a ligature.

That a vessel of this class, the author remarked, should have bled so furiously, in the first instance, could not have been anticipated. Having done so, one can so far understand the active pulsation and rapid extension of the tumour. It was, of course, quite impossible to determine whence the blood flowed into the aneurismal cavity. The principal vessel going to the limb might have been wounded, or some considerable branch. A small branch, divided close to the principal vessel, poured out blood furiously, as much so as if an opening in the coats of the artery itself were made by a portion being punched out, corresponding in size to the area of the branch. The division of a small branch at a distance from the source from which it springs is of little importance. It contracts, and soon ceases to bleed: but when it is divided close to the trunk, blood issues from it, as it would if an opening, equal in size to the calibre of the little branch, were made in the trunk itself.

The author noticed the risk of secondary hemorrhage in these cases, in order to show that some active measures were required to arrest the threatened danger. He objected to the operation of opening the sac, and securing the wounded vessel by ligature; that patients who have lost a great quantity of blood are often sunken and lost by the sudden effusion of even a small quantity, and, after adducing some cases in point, he remarks that the danger must be enhanced when the tumour is so placed that there is no possibility whatever of making pressure on the trunk of the artery on the proximal side of the opening into it, or of the origin of a branch wounded close to where it is given off, as in the case of Mr. S. The cyst could not have been opened without great loss of blood, and it was not likely that a ligature on the branch would have permanently arrested the bleeding: indeed, it was stated by Dr. Allen that the trunk would not have held a ligature.

The author having asked, whether there is anything to bear a surgeon out in adopting this practice, adduced a number of cases to show that vessels bleeding outwardly, or pouring their contents into the tissues of a limb or region, have become permanently closed in consequence of the flow of blood being intercepted and weakened for a time by the application of a ligature upon the principal arterial trunk. A man, thirty years of age, was wounded by a musket-ball, which entered the left groin, and passed through the inside of the thigh. On the "tenth day from

the injury, the slough from the anterior wound came away, and was followed by so frightful a hemorrhage as to leave no doubt whence it proceeded, nor, from the wound being so high up, any alternative as to the means to be adopted for stopping it." The external iliac was tied, but the patient died of fever. No account is given of any dissection of the parts. "In this case the necessity of the operation is evident, and, as far as it went, also its success. Not a drop of blood was lost after it." So says Mr. Guthrie, who, it is to be presumed, conducted the treatment of the patient. We are left to conjecture what vessel was wounded. It may have been a branch, as likely as the trunk, and those who have attended to the description of the hemorrhage in the case of Mr. S.—to its impetuosity and amount—will bear the author out in this assertion.

The author observed that he has endeavoured to show: 1st, that the case of Mr. S. was one of great and immediate danger; 2d, that some decisive step was required to be taken, and that without a day's delay; 3d, that very great risk would have been incurred in attempting to put a ligature on the wounded vessel; 4th, that there was ample authority for adopting the step which was had recourse to in the case. The dangers likely to arise from the operation were considered as weighing but lightly in the scale against those impending from the effects of the pistol shot. Inflammation of the peritoneum was scarcely taken into account in consulting on this case. Out of the forty-five cases of this operation, collected by Mr. Crisp, nine, or one-fifth died, but not one from peritoneal inflammation.

In conclusion, the author remarked that, in the opinion of those concerned, the step most likely to avert danger, and prolong the patient's life, was adopted; the only step, it has been shown, that could have possibly been resorted to with propriety or safety. Upon a candid review of the case, and with a knowledge of all the circumstances connected with it, it now remains for the fellows of the Society to say if there was left anything undone, or anything done imprudently or unscientifically, as has, it appears, been alleged. It is competent also to consider what might have been alleged against the resources of our art had the patient suddenly perished from hemorrhage; if, in fact, we, who had all the responsibilities of this important case to sustain, had stood idly by, waiting for some miracle of nature to save the patient from the inevitable results of his wound, and the author of it from the consequences of his crime.—*Lond. Med. Gaz.*, April, 1846.

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40. *Disease of the Brain following the Application of a Ligature to the Carotid Artery.*—By John P. Vincent, Esq., Surgeon to St. Bartholomew's Hospital (*Proceedings of Royal Med. and Chirurg. Soc.*, Jan. 13, 1846.)—The author states that the two following cases appear to possess an interest that entitles them to be placed under the consideration of the society.

James M——, aged 48, in July, 1829, was admitted into St. Bartholomew's Hospital with an aneurismal tumour under the right ear. It had been forming eight months, and was about the size of a small orange. On July 18th, the author tied the common carotid artery. In about an hour and a half after the operation, the patient was discovered to be slightly convulsed on the right side. He afterwards sunk into a state of stupor. He was bled to thirty ounces. After this he became more sensible. He had twitchings of the right side. He was again bled during this and the two succeeding days, and altogether lost eighty-four ounces. His left side became paralyzed; his urine and feces passed off involuntarily; he swallowed with difficulty; and on the 24th he died. On examination of the body, it appeared that the veins of the right side of the brain were not so filled as on the left. The substance of the brain on the right side was quite soft and cream-like. There was no deposition of blood in any part, but a little more serum in the ventricles than usual.

On the 9th of April, 1845, Wm. B——, aged 28, was admitted into the hospital, having stumbled, a few hours previously, against a door whilst smoking a pipe, which penetrated the tongue anterior to the right tonsil. The patient felt a portion of the pipe in the wound, but was not able to remove it. There was some bleeding, which gradually subsided. The voice was husky. He complained of pain, which was increased on his attempting to swallow or to open his mouth. On introducing a probe into the wound, no foreign body could be detected. The parts around the wound were greatly swollen. During the next five days the

swelling gradually increased, and impeded deglutition. On the morning of the fifth day his breathing became difficult. On the 16th, hemorrhage took place to the extent of twenty-four ounces, which was arrested by pressure. The author was sent for, and fearing that if the pressure was remitted the hemorrhage would prove fatal, he proceeded to tie the carotid artery. This could not be accomplished without much difficulty, arising from the swollen and sloughing state of the parts, and from the effusion of pus and blood, and also from the excessive restlessness of the patient. It was observed during the operation that the patient made violent efforts with his right side, but that he never moved the left extremities. During the night the left extremities were frequently convulsed. His pulse, which had been 132, sunk to 96. During the next two days the twitchings of the right side and paralysis of the left side continued. About midnight of the 18th, whilst coughing, about an ounce of arterial blood flowed from the nose and mouth, and from the wound in the neck. He was sensible. On the 21st a fit of coughing, with hemorrhage, to the extent of two or three ounces, from his nose and mouth, terminated his existence.

Examination of the body.—The wound in the neck presented a sloughing appearance. At the bifurcation of the carotid, on the right side, there was a large and firm coagulum, in the middle of which was the extremity of the tobacco-pipe, which had penetrated the artery at the point of division into external and internal carotids. The convolutions of the brain on the right side were flattened and softened. On dissecting the brain, irregular-shaped cavities, filled with ash-coloured effusion, with shreds and particles of a greenish hue, were discovered. One of these encroached on the corpus striatum.

The author adds, that if the portion of tobacco-pipe had been detected at the time the patient was brought to the hospital, and withdrawn from the wound, he must have died instantly from the gush of blood that would have taken place, as this body seemed to have plugged the artery. The author had understood that such a sudden fatal event has occurred under similar circumstances.—*Lond. Med. Gaz.*, Feb. 13, 1846.

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41. *Aneurism of the Carotid Artery—Ligature of that Vessel.*—Dr. G. White reports in the *Lancet*, (Feb. 7th, 1846,) a case of aneurism of the carotid artery, for which he placed a ligature on the vessel below the tumour with a successful result. The subject of the case was a printer, 34 years of age, of not very temperate habits. The tumour was of considerable size, occupying the right side of the neck, from just below the ear to within two fingers breadth of the sternum; the larynx was pushed considerably to the opposite side, and the sterno-cleido-mastoid muscle was forced outwards and backwards. The tumour commenced between two and three months previously, at the upper part of the neck, and gradually extended downwards as it grew larger.

The operation was performed, August 28th, 1845, in the following manner:—The patient being laid on a table, in such a position that the light fell directly on his neck, an incision about two inches long, was made through the integuments in nearly a perpendicular direction, and terminating at the inner margin of the attachment of the sterno-mastoid muscle to the sternum, the upper part of the incision being between the tumour and the trachea. This exposed a large vein, round which two ligatures were placed, and the vein divided between them. The fascia and some loose cellular tissue were next divided, and the edge of the sterno-hyoideus brought into view. Crossing the upper angle of the wound was just seen the omo-hyoideus. At this stage of the operation, very moderate pressure with the point of the finger at the bottom of the wound arrested the pulsation of the tumour; but the beating of the carotid could not be felt. The sides of the wound were held asunder by blunt hooks, and the wound kept clean by small bits of sponge, put to the bottom of it by means of forceps. With the forceps and scalpel the sheath of the artery was now scratched through, a nerve (descendens noni) was seen, and pulled aside by the blunt hook, and the artery was fully exposed. An armed aneurism-needle was, with some difficulty, passed behind it from the outer side; but from the great depth and narrowness of the wound, the needle's point could not be brought forward on the inner side of the vessel. The needle was therefore withdrawn, and another, the curve of which formed a segment of a much

smaller circle, was introduced with facility. The artery, as it now lay on the aneurism-needle, was compressed with the tip of the finger, and the tumour's pulsation was found to be commanded; the pulsation in the vessel itself was very feeble. The needle being withdrawn, and the ligature firmly tied, the edges of the wound were brought together by two points of suture, and some strips of Macord's plaster.

Scarcely an ounce of blood was lost during the operation.

Mr. White conceives that the operation was much facilitated by the adoption of the following ingenious expedient suggested by Mr. Sibson. Before commencing the operation, the patient was desired to exhale completely, and to keep his chest as empty as possible. While in this state, the upper part of the chest was closely surrounded with a very long firm bandage, and he was instructed to respire, as much as practicable, by the diaphragm and abdominal muscles. By this means the length of the neck was materially increased, and the cervical veins were prevented from being alternately distended and emptied. It is remarkable that the internal jugular vein was not seen. On the six day some hemorrhage took place, which was quickly arrested by pressure on the wound with a sponge wrung out of cold water; about two or three ounces of blood were lost.

On the tenth day the ligature was found loose in the wound. In the evening hemorrhage to the amount of a pint occurred, which was somewhat restrained by pressure with the cold sponge. The wound was then filled with lint, and a large graduated compress placed over it, and some pressure kept up by means of strips of adhesive plaster, and a bandage passed in the figure of 8 under the arms.

The next (11th day,) the hemorrhage recurred to the amount of three or four ounces, but ceased spontaneously. From this time the case went on favourably, and on the 20th October he returned to his occupation in the printing office.

At the date of the last report, Dec. 15, the wound had healed for some time, the tumour had diminished to one-sixth of its original size, and the patient's health was good.

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42. *Ligature of the Subclavian Artery on account of Hemorrhage from a Wound of the Axillary Artery.*—Dr. Richard J. Mackenzie communicated the following example of this to the Medico-Chirurgical Society of Edinburgh.

A man, 35 years of age, had fallen with his whole weight on a red hot poker, which he held in his hand, the point, which was at a dull red heat, entering the right axilla. A deep and scorched wound was made, from which, on the separation of the slough eight days afterwards, profuse arterial hemorrhage took place. The bleeding was checked by the application of a compress and bandage, but was renewed two days afterwards, when the same measures were adopted. On the fifteenth day from the injury, after repeated returns of the hemorrhage, the arm was swollen and hard, and the patient complained of cold and a sensation of numbness in the hand and fore-arm; he was blanched and exhausted from loss of blood, and complained much of the pain produced by the pressure in the axilla. The bleeding was easily commanded by the compress and bandage, but the dressings again became saturated with blood, in twenty-four hours after their application.

On consultation, it was determined that a ligature should be applied to the subclavian artery, over the clavicle, which was done on the same day, (November 19th,) fifteen days after the receipt of the injury, and seven after the first bleeding from the wound in the axilla. The compress and bandage were removed on the day following, and no return of the hemorrhage took place. The wound in the axilla speedily assumed a healthy aspect, and the patient made a rapid recovery. The ligature separated on the twentieth day after the operation, a week after which both wounds were entirely cicatrized. On the 20th December, the patient had returned to his employment, and was quite well.—*Monthly Journ. Med. Sci.*, March, 1846.

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43. *Gun-shot Wound, and Excision of the Head of the Humerus.* By Thomas Stratton, M. D., (*Edin. Med. and Surg. Journ.*, Jan., 1846.)—The subject of this case was an Indian boy, 6 years of age, who was wounded, August 10th, in the left arm by the accidental discharge of a gun heavily loaded with duck-shot, he being

at the time about six feet from the muzzle. When seen by Dr. Stratton, August 16, the wound at first sight appeared to extend along the outer side of the arm from the shoulder to the elbow, but on re-applying a flap two inches long at its lower extremity, the wound was reduced to four and a half square inches. In the upper half of the arm the soft parts were much injured, part of them seemed to have been shot away, and in the margin of the wound there were several shot holes in the integuments; two inches of the shaft of the humerus was destroyed; there was a thin glairy discharge from the upper part of the wound; a part of the shaft of the humerus two inches long, and several other loose pieces of bone were removed, and also a quantity of moss which the Indians had applied to stop the bleeding, which they say was not great at the time of the accident. There was but little constitutional disturbance; the skin was cool, the tongue moist, and the appetite moderate. To take castor-oil, and a cloth dipt in cold water to be applied over the wound.

The next day, (Aug. 17,) Dr. S., with the aid of Dr. Nicholson proceeded to remove the head of the humerus. The patient was laid on a table with his left shoulder projecting over its edge. Of the lower part of the humerus the projecting extremity had been broken very obliquely, and on bending the arm at the wound this sharp and almost pointed end was removed, partly with a saw and then with the nippers. Dr. S. then took hold of the lower extremity of the upper part of the humerus, and with a small double-edged scalpel cut along it upwards towards its head, from the side of which a small splinter was removed. The head was then turned out of the socket by using the scalpel around it and turning the other end towards the chest; the part thus removed measured two inches; no vessels required to be tied. Search was made in the soft parts for any pieces of bone that might have been driven in by the shot; lint wet with water, was for the day put in the socket, the soft parts were adjusted so as to make the breach as small as possible; with a sling the elbow was raised up so as to aid nature in shortening the arm, in order that the loss of bone might be less felt: a single turn of a bandage confined the arm to the side, and a cloth dipt in cold water was applied over the wound.

August 18. Slept well; skin cool; bowels open; tongue moist; some thirst; the weather is hot, the thermometer being generally about 84° Fahrenheit in the shade; the lint is removed from the socket, and thin rags dipped in water are applied over the wound, which is five inches long, two and a half broad at its lower, and four and a half inches at its upper extremity. A number of maggots have appeared, on which account a solution of the chloride of lime, (half a drachm to a pint of water,) was applied to the wound.

August 19. He is proceeding favourably: very few maggots to-day; to continue to wet the cloths with the solution of the chloride of lime and with water alternately. To have a small quantity of Port twice a-day.

The patient continued to go on well; a month after the operation he sat up in his bed; several pieces of bone were subsequently discharged, but the wound entirely closed on the 7th Dec., 112 days after the operation. At this period he moved the left elbow forwards and backwards as freely as before, and elevates it to within an inch as high as he can raise the right elbow; the left arm is about two and a half inches shorter than the right.

At the date of the last report, April 28th, eight months after the operation, the patient was well; he had nearly as much use of the arm as before the accident. He uses the axe and lifts weights easily. He moves the left arm as freely in all directions as the right, except that he cannot elevate it quite so high. When he is dressed there is no observable difference between the arms; when undressed, the left shoulder appears flattened.

Dr. Stratton, in his remarks, states that the soft parts were so much destroyed by the gun-shot injury, that the long period of three months and a-half was required for recovery. About four or six weeks of this delay was occasioned by the slow progress to the surface of fragments of bone which had been driven far into the soft parts. There was no use made of cataplasms or of unctuous dressings, the applications being of water alone, or with chloride of lime, or with sulphate of zinc, as a stimulant, as recommended by Mr. Liston. It was unfavourable for such a large wound, that in August the weather was very hot,

which encouraged the appearance of maggots about two-thirds of an inch long. A few seen one day were followed on the next by hundreds; the rapidity of their production and growth is surprising. Perhaps they do not physically impede the cure; but, besides the loathesomeness of such creatures being about a wound and bed, they alarm a patient and his friends, and thus have a depressing effect on his mind. After they had been troublesome for a few days, chloride of lime was procured, and they disappeared.

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44. *Polypi of the Female Urethra.*—In our preceding number (p. 484,) will be found some interesting remarks by Dr. Lever, on the vascular growths which occur in the female urethra, an affection to which sufficient attention has not been directed. With a view of furnishing a more complete history of the disease, we shall now present a summary of an interesting thesis (*Thèses de Strasburg*, No. 129), by Dr. M. H. Bavoux, as given in the *Archives Générales*, for September last.

In the female urethra both a mucous and vascular structure exists, and this peculiarity gives to the polypi which occur in it a peculiar character. They possess both a mucous and a vascular structure, and these two characteristic elements are never observed increasing independently of each other. On the contrary, these small bodies are constantly seen to originate from hypertrophy of the mucous membrane, into which numerous vessels from the subjacent erectile tissue are prolonged, so that of all the species of polypi described by authors, those which, in a descriptive point of view, approach nearest to these tumours of the urethra are, without doubt, the fungoid species; with this distinction, however, that these polypi rarely, and as it were exceptionally, degenerate.

Polypi of the urethra very rarely occur before the age of puberty, and appear to have for their cause a too great stimulus of the genital organs. Thus the affection is more frequently met with in prostitutes than in other females. Schutzemberger has seen them occur after blennorrhagia; but, of course, frequent coitus or masturbation may act in the same manner.

The polypi sometimes project beyond the orifice of the urethra, and lie between the large labia; they are sometimes retained within the interior of the canal; and hence, the division into *external* and *internal* polypi.

External Polypi are of much more frequent occurrence than the latter, and generally originate from the posterior wall of the canal, near the meatus urinarius, a circumstance which did not escape the observation of Boyer. At other times, however, they originate higher up and thus remain concealed for a longer or shorter period, till by their increase in size, or the elongation of their pedicle, they at length protrude. Their size is seldom considerable; it varies from that of a currant to that of a large cherry, and rarely exceeds that of the latter. The pedicle is in general large as compared with the size of the polypus, and decreases in size as the latter enlarges. Their shape at the commencement is very generally that of a cone; at a later period, from the increase of growth being irregular at various points, they assume a lobulated appearance. Their surface is most generally of a bright red colour; at other times it is somewhat pale, and at others of a deep red: sometimes they are entirely covered with a thin smooth epithelium; at others, this is wanting, and then they exhibit a villous fungoid aspect, similar to that of a wound in a state of suppuration. In this latter case, the tumour bleeds more easily when touched, is more painful, and smarts from contact with the urine. In general, polypi of the urethra cause no pain; in some cases, however, a sensation of burning, or even of extreme pain, is produced after walking, coitus, or the passage of the urine; the pain may extend to the fundus of the bladder, rectum, or uterus, so as to lead to a suspicion of disease in the latter. They are sometimes the cause of hematuria, and very often of slight hemorrhage after coitus. In some circumstances there is over-excitement of the genital organs; but there is rarely any difficulty in passing urine, and still more rarely incontinence of urine, even in those cases where the urethra is so much dilated as to permit the entrance of the finger. At first, their growth is pretty rapid, but after attaining the size of a bean or a cherry, it becomes slower, or they remain altogether stationary. In one case in which the author saw the tumour developed, as it were, under his eyes, its commencement was marked by the rise of groups of vascular granulations on the lower wall of the meatus; these granulations soon became united at

their base; the interstices which existed between them were filled up, and thus a polypus of the size of a pea was formed, with a tolerably large pedicle; it was excised by means of a pair of scissors. In general, polypi of the urethra are not a serious affection and may continue for an indefinite period. Spalderer, according to M. Gerdy, saw one evacuated with the urine. M. Tanchou, on the other hand, regards it as a disease very difficult to be rooted out in adult females; but it is probable, that the cases witnessed by M. T. were not cases of true polypus of the urethra.

Internal polypi seldom occasion any well-marked symptom which may lead to the suspicion of their existence; after attaining a certain size they make their appearance externally, and then come under the description of those we have just given.

The author has traced, with great care, the differential diagnosis between polypus of the urethra, and some other affections for which it may be mistaken. The absence of accurate diagnosis is of little importance, as far as regards distinguishing it from hernia or hypertrophy, either of the mucous membrane or its folds; but the case is very different as regards introversion of the fundus of the bladder, or venereal vegetations. Introversion of the fundus of the bladder is characterized by the presence of a soft reducible tumour, of the size of a nut, and of a bright red colour; it is accompanied with severe pain and dysuria, which disappear after the introduction of a sound into the urethra. Polypi, on the other hand, are soft, indolent, irreducible tumours, which occasion no inconvenience in the excretion of the urine, and offer no obstacle to the introduction of the catheter into the urethra. An error in diagnosis between these two affections is easily committed, and if not avoided, would lead to danger; more especially if excision of the tumour were attempted; but an error scarcely less unfortunate is that of mistaking polypi for venereal vegetations, not only because it throws suspicion on an otherwise innocent person, but also as subjecting her to a course of general treatment not altogether void of danger. An attentive examination of the tumour ought to remove all doubt. How indeed can a solitary, pediculated tumour, of a redder colour than the membrane, but having its consistence. bleeding easily, with a regular or a lobulated surface, of a smooth or shreddy character, but always soft, be confounded with those small, hard, unequal projections of the size of a pin's head or a hemp seed, or with red granular excrescences, or, finally, with those small flattened prolongations of the mucous membrane of the vulva, with irregular edges?

Treatment.—The author has never seen any good result from topical applications, (acetate of lead, for instance), or repeated cauterizations. Pressure, by means of conical bougies introduced into the urethra, as advised by Madame Boivin, has likewise appeared to him of little benefit. Removal of the tumour, either by scissors or ligature, is the only treatment he has found to be efficacious. In a case still under treatment, the tumour separated four days after the application of the ligature. Excision is more expeditious and less painful. It may be performed with a pair of curved scissors, the tumour having been previously seized with a pair of forceps, or a thread passed through its pedicle, so as to drag it outside the canal. In cases of internal polypus, the canal must be previously dilated or an incision made through its walls, as performed by Varner, ere its excision can be attempted. As a matter of prudence the point of attachment of the pedicle ought to be cauterized, in order to prevent any tendency to reproduction.

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45. *Calomel in Chronic Urethral Discharges.* By Dr. Mayor.—Calomel in powder is applied to the affected part by means of a straight hollow catheter, perforated *in its side*, but *close to its extremity:* the lateral hole is filled with calomel, and then the instrument is introduced into the urethra. By means of acting with a stopper, like a piston in a syringe, and, slowly turning the catheter upon its axis, the mercurial salt is brought into contact with the seat of the discharge.

By comparative experiments, M. Mayor has satisfied himself that his cures,—accomplished, he says, as if by magic—are really due to the topical application of the calomel, and not to the mere introduction of the instrument. The

former cured many obstinate cases which the latter method did not improve.—*Encyclographie Médicale*, Jan., 1846.

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46. *Calculi of the Prostate Gland.*—Numerous examples are to be found in the records of our science of the existence of calculi in the prostatic gland. In many cases these calculi have found their way into the gland from the bladder, but in others they have been unquestionably formed originally in the part. M. Lenoir related to the Surgical Society of Paris the following case. A patient, 55 years of age, had been recommended to him by a provincial surgeon, under the belief that he was labouring under vesical calculus. On introducing the sound, he found an obstacle which gave a clear sound, and which he thought was a vesical calculus, but on examining the rectum with the finger, he failed to recognize its presence. On exercising pressure, however, on the prostate, he caused the escape of about fifteen small calculi. They were of a dark yellow colour, presented facet surfaces; and gave a decided animal odour when burnt. The patient, who, when he entered the hospital, had all the symptoms of serious vesical catarrh, left nearly well. A few months later, he was again sent to Paris, under the idea that he was labouring under vesical calculus, and a number of small stones were again ejected, by pressure of the prostate. Vesical catarrh was present, as on the first occasion. M. Lenoir thought that the calculi were formed in the ejaculatory ducts, and that it was because they occupied the orifice that these produced, when touched with the sound, the sensation of a stone in the bladder.

M. Nelaton had met with a case at the Hotel Dieu, similar to the one of M. Lenoir. The friction of a sound over a hard substance in the region of the prostate had led him to recognize the presence of prostatic calculi. He managed to withdraw several by means of lithotritic instruments, and the patient left apparently cured. Two months afterwards he returned with the same symptoms, indicating prostatic calculi, and, in addition, with a vesical calculus. He was not able to lay hold of the latter in order to crush it, and was obliged to perform the operation of lithotomy. On scratching the surface of the incised prostate with his nail, he managed to make several calculi fall, similar to those described by M. Lenoir. The patient was cured. M. Michon, M. Guersent, and M. Laugier, thought that prostatic calculi were not rare; M. Malgaigne was of a contrary opinion.—*Gazette des Hôpitaux.*

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47. *Lithotomy.*—Signor Bresciani de Borsa, in his *Saggi di Chirurgia Teorico-pratica*, states that of one hundred cases of stone operated on by Sig. Manzoni, of Verona, and himself, only one has died, and that from causes irrespective of the operation! This is certainly a degree of success calculated to excite our astonishment. It exceeds much even that of our countryman, Prof. Dudley, hitherto considered the most fortunate of lithotomists, he having operated, it is said, successfully in 180 out of 185 cases. Sig. Manzoni's operation consisted in cutting into the spongy portion of the urethra only, and then dilating the bulbous and prostatic portions sufficiently with the finger to admit of the introduction of the forceps and the removal of the stone. Dr. B., however, judging it more reasonable to cut into the more dilatable portion of the urethra, carries his incision from the bulb to the prostate, and even unavoidably sacrifices the latter when it advances more than usually forwards. As the admission of such an operation depends upon the dilatability of the prostate being satisfactorily proved, the author advances several reasons for this, founded on the nature of its anatomical structure, and cites various facts observed by himself and others.

The following are the details of the various steps of Sig. de Borsa's operation as given by himself, and which we copy from the *Medico-Chirurg. Rev.* for April, 1846.

"Having placed the patient in the usual position, (it is much preferable to retain him in this by means of assistants than by ligatures, for the mere ceremony of adjusting these, causes a great dread to the patient which may alone suffice to induce a low and fatal form of fever,) introduced the catheter, and made a sufficiently large external incision, I open, with a small, lancet-pointed, double-edged, strong scalpel, the whole of the membranous portion of the urethra, so as to expose the instrument to the extent of about 10 lines, in doing which it may in

some cases easily happen that the apex of the prostate is also cut, although in the case in which the patient died it was found entire. I now take hold of the handle of the catheter, and passing my left fore-finger into the wound, feel the groove exposed; and as others would pass some form of gorget through the prostatic portion of the urethra and neck of the bladder, I only introduce my finger into the bladder, being certain it never can make a false passage, since I keep it in contact with the metallic instrument. I take care, nevertheless, not to pass my finger along the groove, because I should then thrust it against the internal or posterior angle of the wound, and then against the great bulk of the prostate. Scarcely do I touch the groove before, instead of following it, I pass my finger upon the right side of the staff (as regards the patient) and carry it quietly and without any obstacle into the bladder. One of the advantages of this modification is, that it enables me, in most cases, to come at once in contact with the stone.

"I then remove the staff, still, however, retaining my finger within the track of the incision, and gently moving it about in a semi-rotatory manner, effect a much greater dilatation of the prostatic urethra and neck of the bladder. Next, I pass in the forceps behind my finger and seize the stone. It has to pass along a track of only from 12 to 15 lines, or even less, since the inverse cone formed by the forceps approximates the neck of the bladder and urethral aperture, for which reason the space is shorter and more easily dilated. I remove the stone with two, or at most three semi-rotations, performed with circumspection and care, along an axis, which, commencing at the centre of the bladder, should pass through its neck, and following the centre of the prostatic urethra, terminated in the centre of the perineal aperture.

"I am in general not more than a minute after opening into the urethra before I have extracted the stone, and the operation has always succeeded in my hands. Safety, simplicity, and celerity, I have already said are desiderata of every operative process, and I am in a condition to prove that they attach to this one recommended by me. All I employ are simply a bistoury and the forceps—*simplicity*, surely, in comparison with the multiplicity of complicated instruments which has been recommended in the various and numerous modes of performing *Cystotomia*. By passing my finger along the staff, I secure that *safety* which is not usually a characteristic of operations for stone. It is related that even the celebrated Scarpa passed the gorget, which was looked upon as the palladium of his fame, in between the bladder and the rectum. The same thing has occurred to many otherwise skillful operators. * * * * I am certain of not injuring either the pudendal artery, the prostatic venous plexus (so frequently in a varicose condition in the aged), the body of the bladder, or the rectum. Farther, by the preservation of the whole, or nearly the whole, of the prostatico-vesical canal, inflammations between the rectum and bladder are avoided, inasmuch as urinary infiltration is prevented, in consequence of the prostate not being divided. * * * * * The *rapidity* of the operation is shown by the fact, that instantly after I have opened the urethra I have the stone in my hand; and any one who has ever once performed this operation, will bear witness to my assertion. I may observe that it seems almost impossible that so many operators, at all periods, have written so much, and cudgelled their brains to invent new operative procedures for lithotomy by deep prostatico-cystic incisions, while, with a simple *urethrotomy*, the desired end may be obtained, as I can prove by so many cases."

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48. *Lithotrity.*—M. Cazenave, of Bordeaux, read to the Academy of Medicine of Paris, Nov. 11th last, a short statistical notice relative to the operations of lithotrity, performed by him during the past fifteen years. The number of these operations was 52. Of these 43 were entirely successful, 8 terminated fatally; one patient alone continued to suffer after the operation, although he had been relieved of two large calculi. Of the 8 fatal cases, in 3 death resulted from causes entirely unconnected with the operation. The details of these 3 last cases were given. —*Gaz. Med. de Paris*, Nov. 15, 1845.

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49. *On Lithotrity as a means of removing stone from the bladder.* By Sir Philip Crampton, Bart., F. R. S., &c. &c.—If there is one subject more than another on

which surgical opinion is divided, that subject is assuredly lithotrity. Where, I would ask, is the young practitioner, desirous of being on a level with the improvements of the age, and, at the same time, feeling the want of a guide for his practice, to seek for information on the subject? In the systematic works he will find the highest authorities in direct opposition to one another, not merely on matters of *opinion*, but on the *facts* on which those opinions must be based. If, turning from statistics which point to directly opposite conclusions, according to the views of the parties by which they are used, he endeavours to collect the opinions of practical men, his embarrassment is only increased, professed lithotritists, on the one hand, and hospital surgeons, on the other, taking very different views of the subject—the lithotritists maintaining that the new operation is applicable to almost every case of stone, is unattended with any considerable pain, and is *when properly performed*, quite devoid of danger—the hospital surgeons denying all this, and asserting that lithotrity is applicable to a very limited number of cases, that it is to the full as painful and far more fatal than cystotomy.

Now, when it is considered that lithotrity has been practised in a vast number of cases, both in Europe and America, for more than twenty years, it might be supposed that there were ample data to enable us to arrive at something like a conclusion as to the real value of the operation; unhappily, however, this is far from being the case, and the question as to which operation should be the rule, and which the exception, seems as far from being settled as ever.

Dupuytren, himself a celebrated cystotomist, and the inventor of the bilateral operation, was, as may be easily imagined, anything but friendly to the new operation. The cases successfully operated on in his presence, by M. Civiale, induced him to mitigate his sentence, but his hostility was not the less determined, and in his "Report" to the academy in 1831, he took so unfavourable a view of the subject, as induced the academy to withhold for another year the great prize which had been adjudged to Civiale for his discovery in the year 1827. This proceeding on the part of Dupuytren gave occasion for the celebrated letter addressed to him by Civiale, in which I am bound to say that the castigation—the most severe that, I think, is to be found in the whole circle of medical polemics—is scarcely more than the occasion justified.

As a mode of determining the relative value of the old and new operation, Dupuytren then suggested that a correct list should be made out of the total number of persons operated on by lithotrity and cystotomy within a certain period, and that a comparison should be made (upon equal numbers) of cures and deaths resulting from each mode of treatment respectively; and in this way he conceived that the question as to which operation should be considered as the rule, and which the exception, would be solved at once. M. Civiale at once accepted the proposal, and carried it out with an industry and ability which are above all praise: his tables presented to the academy contain no less than 5661 cases of calculus in the bladder, all classified and detailed with a degree of accuracy which has never before been attempted. But alas for human nature as well as for medical statistics! the humiliating truth remains to be told: each party affirms, and brings forward official documents to prove, that his adversary's lists of cures are not to be relied on. In France, it would appear (on the testimony of M. Amussat)that the statistics of operations are but too like the statistics of battles, each side diminishing the number of its own killed and wounded, and exaggerating the killed and wounded of the enemy. In justice, however, to M. Civiale, I am bound to say, that upon a careful and certainly unprejudiced examination of the whole controversy, the impression on my mind is, that the great "Inventor of Lithotrity," (I give him the title conferred on him by the Academy of Sciences) has not been quite fairly dealt with; and if all the charges brought against him have as little foundation as one which I am enabled of my own knowledge to refute, he must stand fully acquitted of misrepresenting the amount of his success. The late Mr. Henn, of Merion-square,—from whom Sir Astley Cooper had extracted some fragments of calculi by means of his forceps in the year 1824,—consulted M. Civiale in 1827, who ascertained, by sounding, the existence of several calculi in the bladder, complicated with extensive disease of that organ, and of the prostate: he dissuaded him from undergoing lithotrity or any other operation, at least under existing circumstances, and placed him under the care of Dr.

Morgan. Mr. Henn returned to Dublin, where he lived for several years, but never underwent *any* operation. At a sitting of the Royal Academy of Medicine, on the 3d of January, 1828, the name of Mr. Henn appears among the number of those who had been operated upon by M. Civiale, and had died of the operation!

Most unsettled, however, is the state of opinion *in this country* respecting the comparative value of lithotomy and lithotrity. Much of the prejudice which is entertained against lithotrity is founded on the exaggerations of professed lithotritists, whose interest it was to represent the operation which they exclusively practised as absolutely devoid of pain and danger, while the operation of cystotomy, as practised by hospital surgeons, was painted in the most terrible colours. The hospital surgeons, a few of whom enjoyed a monopoly of cystotomy, received, as they well might, with distrust, the glowing accounts of the successes of the new operation, and with anger and disgust what they considered as an exaggerated picture of the horrors of the old.

Hear M. Civiale's account of the operation of cystotomy, which, for power of description, is, I think, without a parallel:—

"The operation is rarely performed in the chamber occupied by the patient. On entering 'the operation room,' which he has been accustomed to consider as 'the place of his execution,' the sight of the raised and covered table, the crowd of assistants, the preparations, all suggest the idea of the scaffold, and are enough to carry terror into the stoutest heart; the terrible array of instruments, mysteriously concealed from his view, but ever present to his mind, the painful, but still more terrific posture in which he is placed on the table, the cords with which he is to be bound hand and foot, the shaving of the part on which the operation is to be performed,—all these circumstances, less serious in themselves than in the fears which they foment, fill the unfortunate sufferer's mind with terrors which increase every moment. Some, unable to support even the sight of so awful a spectacle, fall senseless on the ground; others, as happened lately in the hospital at Pavia, fly from the room, and absolutely refuse to submit to the operation. On his side, the surgeon is far from feeling at ease. 'Does he know, (observes Dechamps,) is he absolutely certain of what he has to do? Can he foresee all the obstacles that may present themselves? No doubt the rules are all clearly laid down, but their application is so subject to vary, that from this source alone the most insurmountable difficulties may result. The practice of the greatest surgeons is before us to attest the fact, and even in our own days we have a sufficient number of instances to convince us of the truth of it; hence it is that cystotomy has ever been, and must for ever remain, in the hands of a few surgeons, who often derive from their experience resources that genius and knowledge would fail to supply."—*Parallèle des divérs Moyens de traiter les Calculeux.* Paris. 1836.

M. Civiale then proceeds to give three fatal cases of cystotomy, attended with the most terrible sufferings; one from his own practice, one from the practice of Covillard, and one from Dupuytren's. In one, (Covillard's,) "after two hours of the most horrible torments, during which several pairs of forceps were bent or broken, when the patient was so exhausted as to be able to utter only some feeble moans, and when his last breath was about to depart with the last drops of his blood, he was unbound and laid in bed, where he expired in the course of an hour." These terrible, but, I fear, not too highly-coloured details, though calculated to increase the horror in the public mind against cystotomy, are clearly chargeable, not to the operation, but to the operator. The cause of these disasters was the attempting an operation which was impracticable, from the great size of the stone; and the surgeon who, from culpable ignorance, committed the mistake, should have been tried for manslaughter for persisting in it, "contrary," as Civiale states, "to the urgent request of all the bystanders. But," he adds, "he was not to be dragged from the altar or from his victim." Such a scene, I rejoice to say, at least within my time, has never been witnessed in this country.

The publication of such cases, however, was all in favour of the new operation. The public, with mind pre-occupied and shocked by such details, hailed with delight the announcement of an operation, "which," to use the expression of Baron Heurteloup, "was almost entirely free from danger and pain."

Now, strange as it may appear, I do not hesitate to say, and I am in a condition to prove to you, that this is not too favourable a picture of lithotrity, *if the operation*

be properly performed, and restricted to those cases which come within its proper domain; but if applied generally to lithotrity, *as a substitute for cystotomy*, it is lamentably untrue. This, however, is a distinction which the public could not make, and the new operation was accordingly hailed by them as "a gift from heaven."

But it becomes the duty of every hospital surgeon who has availed himself of the opportunities which have presented themselves of performing the new as well as the old operation, to give the results of his practice to the profession, and that too in such a way as to leave no room for cavil as to his statistics. This can be done but in one way, and that is, to give a nominal list of *every patient* whom he has treated, stating the particulars of each case, the immediate results of the operation, and the actual state of the patient after an interval of many months, and, if possible, of years. The surgical profession and the public are under infinite obligations to Mr. Key, for having led the way in this true path of inquiry. Himself one of the most expert and successful of living lithotritists, he has studied the operation of lithotrity, and brought to its performance the most consummate skill, based on a most extensive experience. Following his example, I have determined to give, on the present occasion, the result of my personal experience in lithotomy and lithotrity, which extends over a period of upwards of forty years, during which time I have seen the operation performed, both in these countries and in France, by the most celebrated surgeons who have lived during the last half century, and I have myself operated on sixty-eight individuals,—on forty-nine by lithotomy, and on nineteen by lithotrity, and on two of these by a combined operation consisting of lithotrity and cystotomy, or rather, by what Mr. Willis calls lithectasy, that is, by opening the urethra at its membranous part, and dilating, but not dividing, the neck of the bladder, and extracting from the bladder the fragments of the calculus, which had previously been crushed by the lithotrite.

The origin of lithotrity, like the origin of many of the inventions which exercise the greatest influence on human happiness, is involved in darkness; but beyond all question, to Civiale is due the honour of having first constructed and successfully applied an instrument for the crushing or reducing to powder a stone in the bladder of a living man.

Four cases which came before my own eyes determined me to know something more of lithotrity. I therefore proceeded at once to London, and waited on Baron Heurteloup, to witness his mode of operating, with a view of practising it myself. He received me with the utmost liberality, and brought me to witness an operation on Admiral Cumberland. The operation was performed with Civiale's three-branch instrument, for the baron had not then employed his *percuteur a marteau*. Nothing could exceed the dexterity and skill, unless it be the gentleness, with which it was performed. I supplied myself with the instruments, and, after making some trials on the dead subject, I satisfied myself that the operation was applicable only to a very limited range of cases, and that even in the most dextrous hands it was likely to prove as dangerous as it was difficult. I determined, therefore, never to attempt it. The invention, however, of the two-branch *percuteur* changed the whole character of the operation, and with it changed my resolution, so I immediately procured one, and laid myself down to the study of it. Respecting the invention of this admirable instrument, conceding, as we are bound to do, to Civiale, if not the discovery, at all events the application of lithotrity, I would assign to Heurteloup the merit (scarcely inferior to that of Civiale) of having invented lithotripsy, that is to say, the seizing of the stone with a two-branch curved instrument, instead of a three-branch straight one, and reducing it to fragments by means of repeated blows of a hammer. This is the *percuteur courbe a marteau* of Heurteloup, and it is, beyond all comparison, the best instrument that has as yet been invented for pulverizing calculi in the bladder; and this is true, whether the effect be produced by percussion, when the branches are closed on the stone, by the blows of the hammer, or by compression, as when they are closed by the action of a screw. The best proof of the superiority of the *percuteur* to the three-branch instrument, is the fact that it is the instrument which is now exclusively employed by Civiale, and by every lithotritist in Europe and America. In justice to a most ingenious artist, it is but fair to state, that an instrument in all material points identical with the Baron Heurteloup's was invented by Mr. Weiss, of London, so early as the year 1824. Whether or not this instrument

suggested the curved *percuteur* to the baron is more than I will decide. We have the evidence of Sir B. Brodie as to his having seen the instrument with Mr. Weiss in 1824.

To return to my narrative. Furnished with a *percuteur*, I had not long to wait for an opportunity of employing it. In February, 1834, a man named Doyle was admitted into the hospital with a small stone in the bladder; he was thirty-five years of age, and seemed in perfect health. When I told him that I intended to endeavour to remove the stone by breaking it up in his bladder, without cutting him, he seemed transported with joy. I then began by preparing a subject in such a way that I could look into the bladder while manipulating with the instrument: this can be done, when the anterior wall of the abdomen is removed, by cutting away the upper fundus of the bladder, and keeping the opening distended by stitching the cut edges to a ring of strong wire about three inches and a half in diameter. By practising on a subject so prepared, or even on a well-stuffed cushion, on the centre of which the calculus may be laid, you will soon discover a knack (which very few lithotritists have, so far as I know, as yet made public,) by which you can, while your eyes are closed, catch the calculus with certainty at the very first attempt.

After a few days' practice in this way, I performed the operation in the Meath Hospital, March 7th, 1834. The stone was seized, and broken by means of a small hammer; repeated on the 10th; the whole detritus discharged before the 14th; on the 18th the man returned to Waterford, and has had no return of his complaint. This is the first case in which lithotrity was performed in this country (Dublin); it is now more fully adopted, and its true value in course of being duly appreciated.

Now, what is the problem which lithotrity has to solve? It may (according to Civiale) be conveniently stated under the following heads:—

1st. The reducing of calculi within the bladder into fragments sufficiently small to be discharged or removed through the natural passage.

2dly. The effecting this by such means as shall excite no dangerous irritation in the urinary organs.

3dly. The freeing the bladder or urethra from the fragments which these organs may not have the power to expel.

To effect these objects, the instrument should combine a sufficient strength, with a form and dimension which will admit of its being passed through the urethra without exciting any considerable irritation: let us see how these desiderata are fulfilled by the instruments now in use. I need not detain you by a detailed description of various instruments, for all instruments are rendered obsolete by Heurteloup's or Weiss's curved *percuteur*.

The *percuteur* has undergone several alterations and some improvements, but I consider that the most important improvement is the provision for preventing the accumulation of detritus between the jaws of the instrument. I early perceived this great defect, and applied to one of the most ingenious mechanics that any country has produced, to remedy it, (the late Mr. Oldham.) The invention has been claimed by many, but here is the original instrument, made in 1834, which I have used ever since.

The preparation of the patient is general and special.

The general consists in light diet, abstinence from fermented liquors, free bowels without purging, the use of the hip-bath; if the urine be acid, administering alkalies combined with uva ursi or Peruvian bark, and Vichy water; mineral acids when the urine is alkaline, and the infusion of Pareira brava when there is mucous deposit; also absolute rest, with occasionally anodyne enemata.

The special preparation may be summed up under the heads of gradual dilatation of the urethra, when necessary; division of its orifice, when preternaturally contracted; and the frequent introduction of the catheter; on this latter I lay the greatest stress, as, if properly conducted, it allays the irritability of the urethra and the bladder. [Here the lecturer demonstrated the position of the patient on Heurteloup's bed, and proved that a fixed point in the instrument is not only unnecessary but dangerous. He also showed the mode of injecting the bladder, cautioning his hearers against the too rapid introduction of the fluid—more than one fatal case having arisen from this cause. In executing this manœuvre, the water should

be so slowly introduced as to imitate, in some degree, its descent from the kidneys. The various steps of seizing the stone were gone through, as well as the removal of detritus from the bladder, by means of the lecturer's exhausting apparatus, and the mode of removing fragments from the urethra by cutting down upon them, as well as by means of Leroy's jointed curette.] So much, then, for the purely *mechanical* part of lithotrity, on the dextrous and delicate performance of which, much, no doubt, of the success will depend. In calculating, however, the probable *result* of the operation, there is a far more important element to be taken into account—namely, its proper adaptation to the case. If from a too exclusive admiration of lithotrity, founded on the exaggerated representations of some of its advocates, uncorrected by an extended experience, lithotrity be applied to a case to which it is inapplicable, and that properly comes within the province of cystotomy, the certainty is that the operation will fail, and the probability is that it will prove fatal; and to a certain, but not to so great an extent, the converse is true; if, for instance, lithotomy be performed on a person labouring under phthisis, extensive disease of the liver, or kidneys, it will certainly prove fatal. Such cases are not likely to succeed when treated by lithotrity; still they *may* succeed, and if the stone be small, and the bladder tolerably sound, the probability is that they will succeed, and life may not only be prolonged, but, what is scarcely less desirable, what remains of it may be spent in comparative freedom from pain. Again, if perineal cystotomy be attempted in a case where the size of the stone is so great that it either cannot be extracted through the lower opening of the pelvis at all, or without employing such violence as to render the operation almost certainly fatal, then lithotrity affords a means of relief, whether applied alone or in aid of cystotomy or lithectasy.

It appears, then, that cystotomy and lithotrity are not to be considered as rivals, and that the question, as to which of the operations should be the rule and which the exception, should never be brought into discussion; each operation has its special province, the boundaries of which (if, indeed, they admit of being fixed at all) can be determined only by a comparison of a vast collection of facts, carefully noted, and, above all, faithfully reported, and properly authenticated.

If we look to the state of professional opinion in France, we find M. Velpeau, the most able, eloquent, and determined opponent of lithotrity, admits, that in cases of small stones, and even of large ones, if they be friable, and the bladder and its appendages be healthy, lithotrity is the preferable operation; but in all cases of children under fifteen years of age, and even in adults, where the stone exceeds in volume a small nut, and is of excessive hardness, and when the urinary organs are in a state of disease, as evinced by catarrh of the bladder, contracted or irritable urethra, then he would prefer lithotomy. Amussat, Lisfranc, Dubois, and Leroy, on the contrary, are vehement supporters of lithotrity; they would apply it to almost every case admitting of any operation, even to children and infants. M. Civiale, however, though sufficiently partial to what may fairly be called his own operation, is far from applying it indiscriminately. Now, what is the state of opinion on this subject in England?

Sir B. Brodie's opinions are recorded in his lectures on the diseases of the urinary organs. "You should be made acquainted," says this sagacious practitioner, "with the unfavourable circumstances which may attend on this mode of treatment; but you are not to suppose that it often happens that these exist to any considerable extent. The new operation often presents great advantages over lithotomy. It would be a great error to represent it as preferable on all occasions, but it is so in a great many instances."

Mr. Liston, himself one of the most distinguished and successful lithotomists in Europe, is, naturally enough, strongly prepossessed in favour of an operation in which he so much excels. His opinion of lithotrity is, therefore, far less favourable than Sir B. Brodie's. He is not so sanguine "as to suppose that the breaking up of the stone in the bladder will ever entirely supersede lithotomy. If, by some miraculous interposition of Providence, the deposits from the urine should uniformly be pulverizable, and that bladders be made of less irritable stuff than they are, and if, above all, the affected individuals could only be prevailed upon to apply in due time, then might such pleasant anticipations be entertained, and then might we, with some reason, hope to see them realized; but as matters now are,

urinary concretions must, in a great many instances, be cut out of the bladder. Nor is it a circumstance to be very much deplored, since, in good hands, the patient neither endures so much suffering, nor incurs so much risk, as by the proceedings already detailed. The cure, besides, is far less tedious. The stone-grinders, whilst they conceal their own unfortunate results, endeavour to depreciate lithotomy by blazoning abroad the practice of some unlucky surgeon, who, perhaps, loses four in twelve, or six in twelve, of the patients who come under his knife." Mr. Liston acknowledges that now "the screw lithotrite can with great propriety and safety be employed in cases in which the concretion has not attained any very large size, and in which also the urinary apparatus is healthy, and tolerably free from irritability. The cases for this operation must be well chosen, and the proceedings conducted throughout with great caution, gentleness, and judgment."

The last book which has been published on the subject is the work of a well-informed physician—Dr. Willis. It is altogether opposed to the opinion and practice of Sir B. Brodie, and of several other hospital surgeons of high reputation, and particularly of Mr. White, of the Westminster Hospital. The *author* does not, I believe, draw from any fund of considerable personal experience. Speaking of the supersedence of the cutting operation, he says, "Such a substitute was, in its first introduction, and for some considerable time afterwards, believed to have been discovered in lithotrity. But this is beyond all question a rotten staff, which, leaned upon by all who suffer from stone, will certainly fail five-sixths of the number; nearly one-half will find that it is totally inapplicable to their case; from one-third to one-fourth will fall immediate victims to its determined application; and from one-third to one-fourth will escape, to lead miserable lives from diseased bladder, and then die of diseased kidneys: not more than one in three or four of all who were held favourable subjects will find it a safe, effectual, and final remedy for their disease. The public and professional mind has been singularly abused in regard to the value of lithotrity, as a general means of treating stone in the bladder." This is a terrible picture; nevertheless, I believe, if applied to lithotrity, considered and *employed* as a *substitute* for lithotomy, it is not too highly coloured. Dr. Willis supports his opinion by a reference to what he considers as *authentic* documents, (for when *unfavourable* to the operators, and given by themselves, they may be safely so considered.) From a great number of unsuccessful instances, collected from various authentic sources, Dr. Willis arrives at this conclusion respecting the circumstances in which lithotrity is admissible, and those in which it is inadmissible. "Lithotrity," he says, "is admissible, *and only admissible*, in cases in which the bladder is perfectly healthy, and in which the stone is small, of the size of a filbert, a shelled almond, or it may be a nutmeg at the utmost; under all other circumstances, it ought to be held impracticable. In other words, lithotrity is admissible where it is estimated that the stone can, at one sitting, be seized and reduced to fragments of sufficient minuteness to be passed by the urethra. No second, certainly no third operation ought ever to be contemplated; *if the patient who has had lithotrity performed on him is not relieved at once, he is in imminent danger of losing his life.* Lithotrity, I do not hesitate to say it, has now been fairly tried, and found wanting as a general means of relief for stone. Restricted to the circumstances just indicated, it is a great addition to our chirurgical therapeia; applied indiscriminately, and as a substitute for lithotomy, and all other means of dealing with stone in the bladder, it is a most fatal present made to humanity." But Dr. Willis draws his conclusion from documents which have reference chiefly, if not altogether, to the original operation with the three-branch instrument, and the drill, as first practised by Civiale; though even then, his picture is too highly coloured; but if applied to the operation as *now* performed with Heurteloup's *percuteur*, it is far from being a correct representation of lithotrity; and this I am in a condition to prove upon evidence which I am not afraid to say is the most exact that has as yet been offered on any disputed point of surgical practice. I propose to take the last eleven years, and to give every case of stone in the bladder on which I was consulted during that time, the particulars of each case, including the operation (if any) which was performed for its relief, and the issue up to this day, constituting a catalogue *raisonné* of all the cases, whether treated by lithotrity or cystotomy.

From May, 1834, to September, 1845, I have had to deal with thirty-five cases, of which four were females, and twenty-nine were males, all adults, excepting two boys. They have been disposed of in the following way:—

Rev. G. Ouseley, not operated on, on account of his great age, and the diseased state of the prostate. Four were sent to be operated on by Baron Heurteloup, and three of them were permanently cured. The fourth was operated on three times by him within six months, and twice by me within twelve months; for the last time, four years before his death. He died, aged 76, free from urinary complaint. The detritus was removed (as before stated) by means of the exhausted ball. To this complete removal of the particles I attribute the immunity from relapse during the last four years of his life.

[The lecturer then gives a list of "his own cases," twenty in number, on which lithotrity was performed, and that account is followed by his cases of lithotomy, nine in number, concluding them with the following summary.]

It would appear, then, that the thirty-five cases of stone in the bladder which have applied to me for relief between March, 1834, and November, 1845, have been disposed of in the following way:—

Two (the Rev. G. Ouseley, aged eighty-one, and a gentleman at Coolock) were set aside as unfit for any operation—both had diseased bladder and kidneys; four were sent to Baron Heurteloup, and were cured by lithotrity; twenty were operated on by me, (by lithotrity,) all adults; and nine by cystotomy, three under twelve years of age. Total, 35.

All that were operated on by *lithotrity* were cured, with the exception of one, and in his case the operation cannot be said to have failed, because it was performed expressly to bring the stone into a condition to be removed by lithotomy, and this the operation fully effected. In another case, the cure was not completed, from causes that had no reference to the operation.

All that were operated on by *cystotomy* recovered, though one died three months afterwards of old inflammation of the kidney and testicle; but the wound had nearly healed.

It appears, then, that of the thirty-three patients operated upon, nine only were submitted to cystotomy, (about one-fourth:) it is not, however, to be inferred, that out of any given number of cases of calculus, only one-fourth should be operated on by cystotomy; for if ten or twelve of the twenty-four operated on by lithotrity, instead of being adults, were children and old persons, the proportions might probably be reversed, and the cases suitable to lithotrity might be reduced to ten or twelve, and the difference placed to the credit of cystotomy. And this affords a striking illustration of the utter uselessness (not to say the absolute mischief) of drawing any inference favourable or unfavourable to lithotrity, from a statement of the mere *numbers* operated on, without reference to the *circumstances* of each particular case. The numbers of cases that I have given (I admit) are far from being sufficient to justify any general conclusion as to the respective values of the old and new operations, but they are sufficient to establish some points of great practical importance upon which surgical opinion is still much divided. 1st. It is abundantly proved that lithotrity may be successfully applied to cases which are considered to be beyond the domain of cystotomy. I believe the most intrepid cystotomist would have hesitated (if he did not at once refuse) to operate by cystotomy in four of the cases I have quoted, for it is nearly certain that it would have proved fatal. Another patient, aged sixty-eight, and weighing sixteen stone, would have been a very unfavourable case for cystotomy; he was, however, relieved of his stone (a very large one) by lithotrity, without suffering one hour's confinement. 2dly. In certain cases, to which neither cystotomy nor lithotrity are applicable singly, (as two of my cases proved,) the combination of the two operations (and especially of lithotrity with lithectasy) may be employed with success. Finally, it is proved that when the urinary organs are in a healthy state, stones of great hardness, and upwards of an inch and a half in diameter, may be removed by lithotrity with safety. It by no means follows, however, that, in such cases, lithotrity is *always* to be preferred to cystotomy; the choice of the operation must often be determined by various considerations (not purely surgical) connected with each particular case, and having reference to the operator as well as to the patient. A very skillful cystotomist may not have sufficiently practised

lithotrity, and a patient who might make up his mind to suffer one operation, however painful, might be quite unequal to submit to several comparatively slight ones.

But the important question still remains to be determined—a question upon which the cases I have just detailed throw no sort of light—namely, what circumstances forbid lithotrity? It may be stated, as a general fact, that in calculous patients the bladder is not unfrequently found in one of two opposite states, which, if they do not absolutely forbid lithotrity, render its application in the highest degree dangerous, and (as a remedial means) far inferior to cystotomy. The bladder, like the stomach and the heart, has not inaptly been termed a "hollow muscle," which is constantly receiving and transmitting a fluid; like the heart, it is liable to hypertrophy, or thickening of its walls, diminution of its capacities, and increased irritability, or power of contraction; like the heart, too, it is subject to a thinning of its walls, an increase of its capacity, and a diminution of its contractile power: these opposite conditions are easily recognized, and are familiar to every surgeon of experience; but to M. Civiale is due the merit of having shown the influence which these states of the bladder exercise on the success of lithotrity. In the hypertrophied bladder, the patient is harassed by the almost incessant desire to pass water; the quantity discharged seldom exceeds an ounce, or an ounce and a half; the pain, especially in expelling the last drops, is excessive; the urine is always high-coloured, and deposits, on cooling, a mucous sediment, frequently tinged with blood. In such a case, the mere operation of sounding, or even of injecting warm water into the bladder, may excite a severe or even fatal inflammation of the organ. I have knowledge of two cases in which the injection of tepid water into the bladder (though done with the utmost care) proved fatal in three days, by exciting acute inflammation of that organ; on examination after death, the mucous membrane was found inflamed, thickened, and corrugated. In such a state of the bladder, it is scarcely necessary to say that lithotrity is not to be thought of.

The opposite state, in which there is atrophy or wasting of the walls of the viscus, with increase of its capacity (M. Civiale justly observes), exercises a great influence on the sensations which are caused by a calculus as well as upon the manœuvre of the operation, and on its result; it masks all the symptoms of stone, or renders them different from those we are accustomed to observe. As the bladder never empties itself completely, its walls scarcely come in contact with the stone; the consequence is, that the pain and the peculiar sensation in expelling the last portion of the urine (the most certain of the *rational* symptoms of stone) are wanting. Exercise does not cause those bleedings from the bladder, and those painful spasms, of which calculous patients, under other circumstances, complain so much; the urine is loaded, fœtid, and alkaline, the debility increases daily, the pulse is quick and weak, and there are frequent chills, followed by heat flushes—the bladder is in a state of low inflammation, with diminished vital powers, and the kidneys generally participate in the disease. In such a state of things, M. Civiale justly considers that the operation of lithotrity would almost certainly prove fatal; but I believe the same might be said, with equal truth, of cystotomy. He thinks it of so much importance, with reference to lithotrity, that this condition of the bladder should be clearly understood, that, in addition to the signs above mentioned, he gives several others that are deserving of the utmost attention. This morbid thinning and atony of the walls of the bladder must not be confounded with paralysis, or want of action from defect of innervation; this last state furnishes no objection to the application of lithotrity, provided sufficient means be employed to rid the bladder of the fragments of the broken calculus. This is well illustrated by one of my own cases, where the bladder was so completely paralyzed, that for several years the patient had been obliged to draw off the urine by the catheter four or five times in the day.

In addition to the morbid states of the bladder described by M. Civiale, I should say that a contracted and irritable urethra, an enlarged and irritable prostate gland, and, above all, a constitution prone to sympathize with a disordered state of the urinary organs in general, and with the urethra in particular, a large and very hard stone, or numerous small ones, forbid the application of lithotrity, and bring the case within the proper domain of cystotomy.

Lithotrity is in general considered as inapplicable to children under fifteen or sixteen years of age, on account of the narrowness of the urethra in early life, and the comparative safety of cystotomy in young subjects; but considering that in children the urethra is (except at its external orifice) highly dilatable, and that the most violent symptoms of calculus in the bladder are often created by the presence of a stone so small that it might with the greatest facility be crushed, and the fragments extracted, at a single operation, I cannot but hope, that at no distant period the operation of cystotomy will be superseded by lithotrity, in a great proportion of cases of calculus in children. I think that these four calculi [showing them] which I have extracted from infants under six years of age, are the last of the kind that I shall either extract or see extracted by that painful and dangerous operation. But a few days since, Mr. Cusack performed cystotomy on a child of four years of age, in Steevens' Hospital; the moment he divided the membranous part of the urethra, the stone started out into the external incision, and was removed by the fingers of the operator; only the membranous part of the urethra had been opened; the prostate and bladder were untouched. What a triumph it would have been for lithotrity, and what an advancement in operative surgery, if lithotrity had been applied to this case. The bladder not having been opened, the wound was healed in three or four days, and the child was perfectly cured. Nevertheless, it is impossible not to regret, for the sake of the advancement of operative surgery, which is immeasurably improved by everything that renders operations more safe and less painful, that lithotrity had not the merit of this cure.—*Dublin Quarterly Journ. of Med. Sci.*, Feb. 1846.

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50. *Ovarian Dropsy, followed by recovery.*—Mr. R. Eager records in the *Lancet* (Feb. 28) a case of ovarian dropsy, in which the patient had attained the size of a woman at the full period of gestation, the ovarian tumour occupying the abdominal cavity from the pubes to the ensiform cartilage, producing great inconvenience and distress by its pressure on the diaphragm and surrounding viscera, and tapping was regarded as the only probable means of affording relief.

On the 13th November, a purgative was given to relieve constipated bowels—it induced most distressing and violent vomiting, succeeded by rigors and syncope. On the following day a marked change had occurred in her size and form; and, to adopt her own expression,—"She felt a sense of want, sinking, and emptiness, almost amounting to fainting." Early on the morning of the 15th November, Mr. E. was called to her, and found her suffering from all the symptoms of subacute peritonitis, which readily yielded to the usual treatment. On the 17th November a very careful and minute examination of the abdomen failed to detect a vestige of ovarian enlargement, but the whole belly was augmented in size, and over its most dependent parts a very distinct sense of fluctuation was communicated to the hand by percussion. On this day her circumference over the umbilicus was thirty-eight and a half inches. During three or four days subsequent to this date, she evacuated large quantities of urine, to the amount of four, five, and six quarts per diem. On the 22d November her size by admeasurement was reduced to twenty-seven inches, with no perceptible enlargement or fluctuation. From the above time no remarkable symptoms have presented themselves, although her convalescence has been retarded by extreme debility:—this has, however, at length yielded to a generous diet, change of air, and a course of "steel bitter" medicine. She now feels better than at any time during the past four years.

Mr. Eager is induced to believe that the ovarian cyst was ruptured by the violent efforts to vomit on the 13th Nov., that the contents of the sac were extravasated into the abdominal cavity, (producing the attack of peritonitis,) whence they were removed by absorption, the cyst itself remaining in a collapsed and contracted state.

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51. *Ovarian Cysts—Paracentesis* 128 *times.*—Dr. Kirkpatrick exhibited to the Pathological Society of Dublin, Jan. 10th, 1846, the ovaries of a patient who had been a constant patient at the Whitworth and Richmond hospitals during the last five-and-twenty years. She laboured under an ovarian dropsy of immense size, for which she had been tapped 128 times. Her husband was a soldier named Green, whom she had accompanied during the Peninsular War, when she had

been exposed to much fatigue and cold. Soon after her return she was first attacked with this disease, which existed and continued increasing for four years before she was tapped, since which time the operation was performed, on an average, once every six weeks.

Since the opening of the North Union Workhouse, she had been an inmate of that establishment, and was operated on by Dr. Kirkpatrick 47 times, a large bucketful of fluid being removed at each operation.

The fluid was usually thin, serous, and highly coagulable; on one occasion it had a milky appearance, and on another was tinged with blood. The day following each operation, she was always attacked with symptoms resembling peritonitis, viz., great abdominal tenderness, small and rapid pulse, and extremely anxious countenance; but these symptoms yielded to the free administration of opium. She died of an attack of pleuritis, the interval between the last operation and her death being eight weeks. The left ovary was chiefly affected; in it were three cysts: one of considerable size, that which had been so frequently tapped; the other two were developed in its walls; that on the right side was the size of a small melon, and, no doubt, had been the cause of a failure which occurred in the operation whenever that side of the abdomen was selected for the place of the puncture, the fluid suddenly ceasing when a certain quantity had flowed away. A cyst about the size of an orange also existed in the right ovary. The entire tumour was easily removed, the adhesions being slight and the pedicle by which it was connected to the uterus exceedingly narrow. The uterus itself was free from disease, and the abdominal viscera healthy. In the chest were observed the effects of the pleuritis which had caused her death, but both heart and lungs were sound.

This case is most interesting, from the circumstance of an operation having been so frequently performed without bad results. The statistics of this operation show that it is very often followed by fatal consequences. In a table of cases lately collected by Dr. Churchill, 14 cases out of 20 died within nine months after the first tapping.—*Dublin Hospital Gazette*, Feb. 1, 1846.

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52. *Mode of Curing Obstinate Ulcers.* By J. Bresciani de Borsa.—When I have met with very old ulcers, especially those of the leg, which resist every other method of treatment, I have obtained their sound cicatrization by instituting, by means of caustic potass, a new ulcer in the vicinity. I make in a piece of adhesive plaster a hole, somewhat smaller in size than I wish the artificial ulcer to be, and then apply it at one or two fingers' breadth from the old sore. Caustic potass is rubbed on this space until an eschar is formed; and I have constantly observed that during the consequent inflammatory and suppurative processes, the old solution of continuity, which had so obstinately resisted treatment, has closed up, and the cicatrix has in general continued sound.

"If the healed ulcers had resulted from a disordered constitution, to the appropriate internal treatment, I add either an issue in some usual spot, or place a small portion of wax in the artificial ulcer itself when nearly healed, so as to convert it into a common issue, which contributes much to efficient treatment, as by such prudential precaution I have never seen any mischief produced in the constitution of those who had long been subject to obstinate ulcers. If the ulcer was produced by a traumatic cause, after it has become healed, the artificial one may also be cicatrized as soon as possible without any injury resulting.

"In my practice I have cured more than a hundred cases in this manner, and many instances have occurred in the hospital where I have cured ulcers of twenty or thirty years' standing."—*Med. Chirurg. Rev.*, April, 1846, from *Saggi di Chirurgia Teorico-Pratica.*

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53. *Death from Puncture of the Membrana Tympani for the cure of Deafness.* (*Dublin Med. Press*, April 1, 1846.)—Dr. Butcher read to the Surgical Society of Ireland, (March 21, last,) a very interesting paper on puncturing the membrana tympani, in which he related two well marked examples of loss of life following this operation.

The first was the case of a young woman who was deaf in both ears for four years. Prior to this period she got a severe cold, with swelling of all the glands round the neck. So complete was the deafness, that she could not distinguish

between the loudest noises. Catheterism of the Eustachian tube was performed and said to fail. Hence it was agreed upon that the membrane of the tympanum should be pierced, which was done, a small piece being drilled out of the membrane of the right side. Immediately after the operation the hearing was greatly improved. Next day intense pain was experienced in the ear. Suitable remedies were applied, and in forty-eight hours a profuse discharge took place from the ear. This varied much in quantity, day after day, for two months, all the time the hearing being slightly benefited. In eleven weeks after the operation the patient became more deaf than ever, and was constantly complaining of flying pains through the head; at one time fixing in the forehead for a few hours, at another in the occiput, and frequently in the temple, particularly in the right ear; at times not exceeding a dull heavy weight, but at others aggravated to the greatest torture. In this state she continued, one day better, another worse, for four months, when she was attacked with rigors, rapid pulse, intolerance of light, and all the symptoms of disease in the brain, after which she died on the third day.

On examination after death, an abscess was found in the lower part of the middle lobe of the brain. No opening could be detected through the petrous portion of the temporal bone, but the dura mater covering it was roughened on the surface, and softened in its texture, particularly near the internal auditory foramen. The membrana tympani was entirely destroyed, and the lining membrane of the tympanum was considerably thickened and villous on its surface.

The following case is far more interesting. It is that of a young man, ætat. 20. He complained of deafness in the right ear twelve months prior to his death. Having gone to a surgeon in this city, he had his tympanum pierced. At first his hearing was slightly improved, but in three weeks after it relapsed as bad as before; but from this period he had superadded periodic attacks of headache, loud noises being particularly troublesome to him; always a dull heavy pain in the affected ear, which at some periods became most excruciating; ultimately general indisposition set in, restless nights, loss of appetite, those periodic headaches, rambling with greater or less intensity to various parts of the head, together with an unaccountable lassitude, marked his history up to a fortnight previous to his death, when he was seized with rigors and all the symptoms of fever. An eminent surgeon in this city was then called in. The head symptoms all through were most alarming, and though treated most energetically, the symptoms gained ground, and he died. I was asked by the surgeon in attendance to make an examination of the head. The following are the appearances which presented themselves. The pia mater was exceedingly vascular. On cutting into the ventricles, at least six ounces of thin straw-coloured fluid was contained in them. There was softening of the septum lucidum, the thin and thread-like bands of the white structure floating in the fluid; the dura mater and pia mater towards the middle fossa of the right side of the base of the skull was far more vascular than elsewhere, and on lifting up with great care the middle lobe of the right hemisphere of the brain, a streaking of purulent matter of healthy character was found communicating with an abscess about the size of a small walnut, in the anterior part of the right lobe of the cerebellum. The briny matter all round this abscess was rendered very firm. The dura mater covering the upper and under surface of the petrous portion of the temporal bone was much thickened and roughened on its surface. A small tumour about the size of a bean lay on the auditory portion of the seventh pair of nerves. I had not an opportunity of examining the bony structure of the ear, the patient being in the better class of society. The *rationale* of these cases is plain; inflammation attacked the tympanum after the operation, and was transmitted to the brain.

Professor Jacob expressed his belief that numerous instances of a similar kind have occurred as the consequence of putting this operation in practice where it need not and should not have been resorted to. Persons are in the habit, he observed, of performing the operation, well knowing that whatever relief is obtained, is solely of a temporary character. It was unquestionable, in fact, he said, that it is often done merely as a means of obtaining a certain amount of celebrity from this temporary enjoyment of hearing; in the same way that the itinerant oculists were in the habit formerly of going about performing the operation of couching, and acquiring celebrity from the temporary restoration of sight,

caused by the removal of the opaque lens from the axis of vision; never waiting in any town long enough for the inflammatory action to set in, which most frequently terminated in total blindness. The cases recorded by Sir A. Cooper in which this operation was performed by him, and their results were, Professor Jacob observed, not many: but though Sir Astley did perform the operation frequently, he did it in a very delicate manner, by merely passing the sharp end of a common silver probe in and out of the membrane. Dr. Jacob had himself seen him perform the operation. Sir Astley used at the same time to state to the students that the improvement produced would be merely temporary. The introduction of the practice had nevertheless been the source of considerable celebrity to Sir A. Cooper, who received the Copley medal for his communication, published in the Philosophical Transactions, though before a year had elapsed it was found that the operation was by no means attended with the success that was generally anticipated; at the same time it is, as he had already observed, very generally practised by men who grasp at the credit so obtained for the time, regardless of the consequences and the sacrifices made to obtain a celebrity so unenviable.

OPHTHALMOLOGY.

54. *Melanosis of the Eye.* By W. Lawrence, Esq., (*Lond. Med. Gaz.*, Oct. 3, 1845.)—In a clinical lecture delivered at St. Bartholomew's Hospital, Mr. Lawrence has made some interesting remarks on melanosis of the eye, and related two cases, the most important points in relation to which we shall present to our readers.

Case I.—*Melanosis of the left eye—Extirpation of the globe at an early period—Death in three years and three-quarters after the operation, from secondary disease of the liver, pancreas, ovaries, and other parts.*—Elizabeth Rute, a female of rather stout frame, and healthy appearance, who had always enjoyed good health, was admitted into St. Bartholomew's, Oct. 7, 1841, as a venereal patient, on account of superficial ulcerations and mucous tubercles of the external organs. She said that her age was 20, but she was probably two or three years older.

A few days afterwards, she called my attention to the state of her left eye, of which she had made no complaint at the time of admission. It was red, watering, and painful, and presented serious changes in the state of the iris and lens. It appeared, on inquiry, that six months ago, without previous suffering, she had discovered accidentally that she was blind on that side. She experienced no inconvenience, until three months after, when pain came on in paroxysms so severe as to induce her to become out-patient at the Ophthalmic Hospital in Moorfields. She discontinued her attendance after two months, in consequence of her confinement, during which time the paroxysms were less frequent and severe.

We found the conjunctival vessels, and those of the sclerotica slightly injected; the cornea transparent; the iris dark-coloured, dull, and motionless; the pupils widely dilated; the crystaline lens of a dull dingy hue: both iris and lens were in contact with the cornea. Three small staphylomatous projections, one above and two below the middle of the globe, occupied the outer part of the sclerotica, close to the edge of the cornea. Large tortuous vessels of venous character ran over the two lower. Vision was totally lost; there was constant pain, which was occasionally very severe. The suspicion of melanosis immediately occurred to my mind. The presence of a morbid growth in the back of the globe would account satisfactorily for the changes of appearance and position in the iris, pupil, and lens, as well as for the partial absorption of the sclerotica. Leeches were applied three times to the left temple, with benefit; but the pain was not entirely removed.

As the appearances above described might be accounted for by the formation of fluid within the globe, although I did not think it probable, I punctured one of the staphylomatous projections with a grooved needle. No fluid escaped. Entertaining no further doubt respecting the nature of the complaint, I explained to the patient the necessity of the operation, to which she readily consented. The globe

was extirpated on the 23d of October, the lids being separated by a free incision at the external commissure, and turned backwards, so as to expose fully the front of the orbit, and the posterior connections being divided as far back as could be accomplished conveniently.

Examination of the eye.—The globe, not unnaturally soft, was divided through the centre. There was no trace of vitreous humour; a dark and blackish mass, of soft consistence, occupied nearly the whole interior of the globe, pressing the retina, which was healthy and formed a flattened mass, towards its inner side, and the crystaline lens, which was semi-transparent, against the posterior surface of the cornea. During the examination, the diseased mass dropped out from one-half of the section, leaving the inner surface of the sclerotica smooth, but slightly darkened in colour. In that part of the globe which was occupied by the diseased mass there was no trace of choroid membrane, and the growth therefore filled the space between the sclerotica and the retina, which was folded into a small compass. That portion of the sclerotica towards which the retina was pressed was lined by healthy choroid The optic nerve was healthy. The eye is preserved in the museum of the hospital.

There was but little subsequent bleeding; no vessels were tied. Four hours after, she had cold chills, and vomited several times.

[The patient passed a restless night, and the next morning the lids were distended, apparently by effusion of blood into the orbit. On the 4th Nov., she had a severe attack of erysipelas commencing on the face and extending to the scalp and upper part of the neck, which persisted for ten days; after which she convalesced, and on Dec. 6 she was discharged.

From this time performed the duties of a house-servant, and remained well until the latter end of 1844, when she called upon Mr. Lawrence, complaining of pain and fullness in the abdomen. Suspecting that internal disease was forming, Mr. L. advised her to come into the hospital. The following is the report of her condition on Dec. 12th:—"There is a small swelling on the right side of the navel, covered by healthy skin, of which the appearance is slightly altered by the dark colour of the subjacent growth. There is general fullness of the abdomen in the right side and upper part. The liver is enlarged and uneven on the surface, extending below the margin of the chest. Towards the confines of the lumbar and iliac regions, there is a tumour on each side, somewhat movable, of indefinite size and extent. Pain is experienced occasionally. The several functions of the body are performed naturally, but she sleeps badly."

The disease made rapid progress. The abdomen enlarged so that by the middle of February it equalled in size that of a woman at the full period of utero gestation. Pains were occasionally felt in the head and abdomen. Eventually purging of blood took place, at times in considerable quantity. The patient died on the 6th of June. Mr. Coote gives the following account of the post-mortem appearances:]

There were two or three small black tumours in the scalp; the scull-cap, thicker and heavier than natural, contained in the diploë similar deposits, each about the size of a large pea. Black matter was found about the optic foramen, in the lesser ala of the sphenoid bone, and along the inferior margin of the left orbit. The bony substance was not swelled, nor apparently altered in structure, in the situation of these deposits.

The brain was healthy; there was a small black spot lying upon the surface of the anterior cerebral lobes under the pia mater. The left optic nerve, from the orbit up to the commissure, was shrunk into a slender membranous chord, without trace of nervous matter; the state of atrophy was continued in a slighter degree along the right, or opposite optic tract, into the optic thalamus.

There were five dark-coloured spherical tumours, about the size of nuts, visible through the integuments of the chest, situated chiefly about the right mamma. Three similar tumours were noticed under the integuments of the abdomen; they were loose and seated in the cellular tissue; some were firm and black, others of a brownish hue, consisting of thick fluid contained in a cyst.

Black matter was deposited in the cancellous texture of some of the left ribs; a mass of black matter the size of a musket-bullet was lodged upon the anterior surface of the dorsal vertebræ. The lungs were healthy.

There were numerous black tumours upon the outer and inner surface, and in the muscular substance of the heart; two of considerable size projected into the cavity of the left ventricle.

The liver, enormously enlarged, seventeen and a half pounds in weight, occupied the greater part of the abdominal cavity; although much of the surface presented the natural colour, consistence, and organization of the hepatic substance, the enlarged gland consisted principally of a morbid deposit, in larger or smaller masses, which occupied the entire thickness of the organ, and projected from the surface in rounded tubercles of various magnitude and generally of black colour. In the interior the colour varied from a deep black to a light yellowish-brown. The consistence varied; it was generally softish, so as to break down under the pressure of the finger. When passed over paper, linen, or the skin, a black or brownish colouring matter was left behind; the morbid substance was contained in a kind of cyst, from which it could be turned out. The larger masses presented a kind of slight lobular arrangement on section.

The gall-bladder was healthy, and contained bile.

Upon the mucous membrane of the jejunum were seen several small black patches; larger patches were found in the fold of the mesentery, and on the peritoneal covering of the pancreas.

The pancreas was filled with numerous deep black deposits of irregular form, some as large as a musket-bullet.

Smaller deposits were found in the kidneys; two cysts resembling in size and shape the human testicle, each containing a mass of black matter, were attached to the right kidney.—The uterus was healthy.

The ovaries were greatly enlarged and converted into irregular lobulated masses, about eight inches in length, which retained no trace of natural structure; each of these masses consisted of a thin but dense cyst, filled with melanotic structure of soft consistence, and of the deepest black colour. The ovaries with the uterus are preserved in the Museum of the Royal College of Surgeons of England.

Some minute black spots were seen upon the mucous membrane of the vagina, near the os tincæ.

The blood-vessels were healthy.

Under the microscope this morbid deposit was found to be composed of irregularly shaped cells, of larger size than in common medullary disease, and containing dark granules, varying in quantity according to the colour of the part.

In those parts which were soft, and brownish in colour, the cells had given way, and allowed the granules to escape. The granules had everywhere a kind of molecular movement.

Case II.—*Melanosis of the right eye—Extirpation of the globe—Death at the end of six months from melanotic disease within the cranium.*—Sarah Keeble, æt. 43, married, of spare habit and swarthy complexion, but of healthy family, and the mother of six healthy children, never suffered from any illness until two years ago, when, without obvious cause, the right eye became inflamed, the lids swelled, and vision was lost. The inflammation subsided readily under proper treatment, but the sight did not return. Her friends, however, remarked that the eye had a more bright and glistening appearance than the other, and seemed the best of the two. About nine months ago, she had severe pain in the globe, which induced her to examine it in a glass, and on raising the upper lid, she discovered a black spot in the white part. This slowly increased, and projected slightly till about eight weeks since, when it grew more rapidly, pushing the eye downwards behind the lower lid. For three months after the discovery of the black spot she was free from pain, but it then occurred in paroxysms, increasing in frequency and being particularly severe at night. Yesterday (Jan. 9th) the tumour began to bleed.

Jan. 10th, 1845.—There is a dark-coloured tumour, the size of a walnut, with four black tubercular prominences, protruding from the upper part of the right eye, partially covered by the upper lid, which is stretched over it, and rests in a groove on its upper surface. The portion exterior to the lids, directed outwards, is ulcerated, and bleeds freely when touched. In every other part the conjunctiva is entire, but its vessels are large and tortuous. The development of this tumour above the eye has pushed the globe downwards and outwards. When the lids are separated by voluntary effort, the palpebral aperture is entirely occupied by

the morbid growth. On depressing the lower lid, the cornea is brought into view quite transparent, but pushed down to the very lowest part of the orbit. The iris is unaltered and pressed against the cornea, together with the lens, which is discoloured and opaque. Vision in the opposite eye is perfect; appetite good: no disease is apparent in any other part. The history of the case, with the appearances just detailed, left no doubt that melanotic disease had formed within the eye, and had made its way through the coats at the upper part of the organ, so as to constitute the dark tumour which projected between the lids. Extirpation of the diseased organ offered the only prospect of benefit.

Jan. 11th.—The operation was performed in the usual manner. There was some trouble in separating the upper lid, which was tightly stretched over the tumour, but the globe was satisfactorily removed. The cut surface of the optic nerve presented a dark discoloration in slender streaks; as it had been cut through close to the sclerotica, it was thought advisable to take out another portion. Some discoloration was noticed in the situation of the second division. There was no bleeding of consequence; no vessels were tied; wet lint was placed over the orbit, and the patient was carried to bed.

Upon making a vertical section of the eye and tumour, it was found that a morbid growth of soft consistence, brownish in colour, with black portions interspersed, had proceeded from between the sclerotica and choroid in front of the optic nerve, and pushing forwards the iris, which was healthy, and the lens which was opaque, against the cornea, had made its way through the upper part of the sclerotica, just behind the ciliary ligament, and formed a tumour the size of a walnut, covered by conjunctiva. A shred of retina was discovered among some loose fibrous substance. No trace of choroid was seen, nor of vitreous humour, although the morbid growth did not fill the interior of the globe.

No unfavourable symptom occurred after the operation. The swelling of the lids subsided when suppuration was established; the wound healed, and she was discharged in perfect health on Feb. 3d. The unfavourable result of the case, however, is apparent from this portion of the brain, which has been forwarded to us by Mr. S. Freeman of Stowmarket, the gentleman who attended her at the time of her death, which took place in the early part of this month (July), after a few days' illness. Within a week of her decease she had been able to walk a distance of fourteen miles.

The brain, as might be expected in this weather, reached us in a state not admitting minute examination; you see, however, a mass of black matter the size of a large walnut, in a kind of cyst at the base of the brain behind the orbit, pressing the left optic nerve and stretching the commissure. The carotid arteries are imbedded in its substance; the right is pervious, the left apparently obliterated at one point. The growth is partly of a grayish-brown colour, and partly black, and resembles the original disease in the eye. The soft parts remaining in the bottom of the orbit were sent with the brain; the remnant of the optic nerve formed a firm mass with dark streaks in its substance, about as large as a small horse-bean. The remaining portions of the other orbital nerves were healthy.

The thorax and abdomen were not examined.

The two cases of melanosis now detailed present to your view the most striking features of the disease, as it occurs in the eye; and afford the necessary data for determining on the proper course of treatment, more particularly in regard to the important question of operation. You see the malady developed in the interior of the globe, and destroying sight; making its way through the tunics so as to constitute an external tumour, appearing in a secondary form in various other organs, and thus terminating fatally. You see the eye removed, and the patient recovering from the operation; remaining well for a shorter or longer period and apparently cured, but sinking ultimately under the reappearance of the disease in its secondary form.

The primary seat of the affection is between the sclerotica and the retina, which suffer at first merely from the pressure of the morbid growth. Where the melanotic substance is deposited, the choroid cannot be traced; but it is seen, of natural appearance, lining the sclerotica in the part free from the disease.

Although no trace of melanotic degeneration had been observed in the retina, in either of these cases, the optic nerve was discoloured in the second; and the

dark tumour within the cranium was probably connected with the continuation of the optic nerve. In a case, which I examined after death many years ago, where the contents of the orbit were converted into an uniform mass of sooty blackness, the same structure was continued through the foramen opticum, and connected with a large deposit of similar colour, at the basis of the brain. The preparation is in the Museum of the Royal College of Surgeons.

Mr. Lawrence in his clinical remarks, states the extirpation of the globe in fungus hæmatodes has been long abandoned in London, because the operation has been followed speedily and invariably by the return of disease: it is, at least, doubtful, whether there is a single well-established exception to this statement. The results of the operation have been more favourable in cases of melanosis; and it has been considered that, if the morbid growth has not made its way through the coats of the eye, the operation may be performed with the prospect of perfect success. The two cases now reported show that patients may survive the operation some months, or even some years. We learn, however, from the first case, that a long period must elapse before a patient can be pronounced completely cured, if we understand by cure security from the reappearance of melanosis in any of its forms. Here the eye was removed at an early period, under the most favourable circumstances; the patient continued well for more than three years, and then died from secondary manifestations of disease obviously dependent on the original affection.

Dr. Argyll Robertson, of Edinburgh, has published in the *Northern Journal of Medicine* (Nov., 1844) an interesting collection of cases, in which the eye was extirpated on account of various malignant affections. He has operated six times on account of melanosis; he states that five of the patients were cured, and that the result in one case was doubtful. After considering attentively the facts stated by Dr. R., and comparing them with the case of Elizabeth Rute, I doubt whether any one of his patients can be said to have been completely cured in the sense specified above; and I therefore conclude that in saying these persons were cured he merely means to imply that there was no return of disease in the orbit. In Case I. death took place two years after the operation from disease of the heart. Was it melanosis? Were any other organs diseased? Case II. remained well six months after the operation. Case III. died from melanosis affecting the hip and surrounding parts three years after the operation. Case IV. was well at the end of two years. Case V. died with symptoms of apoplexy ten months after the operation, having had fœtid discharge from the orbit for two months before death. It is most probable that melanotic disease had occurred within the cranium in this case. In Case VI. death occurred two years after the operation. The liver was enormously enlarged and of soft texture; there was no melanotic deposit in any part of the body.

Dr. Robertson gives an enumeration of twenty-three cases from other authorities, stating that twenty were cured, while three terminated fatally from secondary melanotic formations. We cannot estimate such cases from a mere enumeration without particulars. Indeed, in order to elucidate the point now under consideration, we require complete histories of the cases embracing a considerable period of time after the performance of the operations.

If it should be found, as I think it probable, that cases of melanosis affecting the eye, always terminate fatally, sooner or later, even although the organ should be removed at an early period, by secondary formations of the disease in other parts, the malignant character of the disease will correspond to what occurs in the skin, the only part besides the eye in which I have seen melanosis as a primary affection. In all the instances that I have known, of cutaneous melanosis removed by operation, death has ensued from subsequent affection of internal organs, generally with return of disease in the part.

Although the removal of the eye in melanosis cannot be undertaken with the promise of permanent success, it may be resorted to, should the patient wish it, as a means of prolonging life. The benefit in this respect will be greater in proportion as the operation is performed at an earliar period. Thus the patient in Case I. enjoyed perfect health for more than three years after the loss of the eye; while Sarah Keeble (Case II.), in whom the disease had made its way through the coats of the eye, survived only six months.

There may be some difficulty in recognizing the presence of the disease previously to the time at which it comes through the coats of the eye. I have not seen it in the first stage, in which there is total loss of vision with little if any change in the appearance of the eye. In Case I. sight was lost without pain or inflammation; while in Case II. there was considerable inflammation with swelling. The eye remains without further change for some months, when the increase of the morbid growth distends the globe, causing severe pain and redness, and pushes forwards the lens and iris. We find at this time the iris in contact with the cornea and motionless, but not otherwise changed; the pupil rather dilated; the lens opaque, and somewhat dingy. The sclerotica soon gives way at some point or points not far from its anterior margin. In one case there was a general bulging of the tumour below the margin of the cornea. This distended portion presented a dull discoloration from the dark colour of the melanotic deposit, and its surface was occupied by large straight vessels, apparently containing venous blood arranged as closely as possibly so as to cover the membrane completely. These appearances show clearly that there is an increase in the contents of the globe, and leave little doubt that the increase is a morbid growth, which must be referred either to fungus hæmatodes or melanosis. There may be effusion of fluid into the eyeball, causing staphyloma scleroticæ. The previous history of such a case will be different from that of the disease under consideration. The iris would probably be changed in colour, but not pushed against the cornea; the crystaline not opaque nor pressed forwards. In staphyloma scleroticæ from effusion of fluid the pupil is dilated to the utmost opposite to the swelling, and the iris may even disappear at that part. Should there be any doubt respecting the nature of the case, an exploratory puncture with a grooved needle should of course be resorted to before operation.

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55. *Cauterization of the Margin of the Cornea in Hemeralopia.*—M. Roussilhe, surgeon to the hospital of Castelnaudary, states that hemeralopia is very common in his neighbourhood. especially in persons affected with pellagra; and that for several years he has been in the habit of treating it by cauterization, with nitrate of silver around the margin of the cornea. This remedy has always effected a rapid cure.—*Revue Médicale*, Sept., 1845, from *Journ. de Méd. de. Bordeaux*, Sept., 1845.

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56. *On the Employment of Gum Arabic and of Iodine for the Removal of certain foreign bodies from the Eye.*—A German writer has recently proposed the use of a solution of gum arabic for the removal of foreign bodies, such as particles of dust, straw, &c., introduced between the eyelids and ball of the eye, when they are not impacted in the conjunctiva. In making this application the patient's head should be thrown back, so that the mucilage may be dropt between the lids or be introduced by the aid of a feather, care being taken not to touch the globe with the latter. This solution does not produce any disagreeable sensation: it instantaneously removes the pain and pressure by enveloping the foreign body, softening it. and sliding with it out of the eye. On the whole, the author affirms, that there is no means better or more sure.

Probably the white of egg, more easily procured than mucilage of gum, may afford analogous results.

We have little to say on the employment of this remedy. Most usually in the cases in which it is counseled, the tears alone suffice to remove the foreign body; but there is nothing to prevent its employment, as it is perfectly innocuous. It is not altogether thus with respect to *iodine*, employed by Dr. Reiniger against scales of iron imbedded in the cornea: and it is more simple and more sure to extract at the time the foreign body with the point of a bistoury or of a needle. We have not yet found any case rebellious to this slight operation; and to speak truth, it seems to us difficult to comprehend how an accustomed hand can fail to conquer all obstacles. However, many practitioners find a difficulty in the employment of sharp instruments with the eye, and the resource imagined by M. Reiniger may, therefore, be found very valuable. The following case will be read with interest:—

A cutler had received in the eye, while working, a particle of steel, which

became deeply fixed in the thickness of the transparent cornea. It was vainly attempted to extract it by a forceps and needle, and the surgeon who had been first called in, was obliged to renounce the attempt. Eight days afterwards the eye was very red; the bit of steel was visible without the aid of a lens—it had preserved its brilliance. The patient complained of a sensation of itching and heat, and vision was no longer distinct.

It was at this time that M. Reiniger was consulted. This practitioner commenced by applying to the patient's eye a very powerful artificial magnet, but without obtaining any advantageous effect. He now saw no other resource than to employ some chemical method for dissolving the particle of steel, which had the dimensions of a needle's point. He could not venture to employ any dilute lotions of hydro-chloric acid, recommended for this purpose by MM. Krisner and Andrew, because the patient could not bear the application of mere cold water during entire hours to the open eye. He then resolved to prescribe the following collyrium:—R.—Iodinii, gr. 1; Iodid. Potass., gr. 10; Mell. Rosarum, ℥10½; M. et fiat solutio, S. A.

Upon the first application of this collyrium, the bit of steel became oxydized! and its lustre disappeared. Very soon the redness of the eye diminished, the heat and itching became alleviated; and by continuing the use of the collyrium, the particle of steel diminished to that degree that it was no longer capable of being distinguished without the aid of a lens. The patient finally recovered completely the visual faculty.

This process has for its object to transform the iron into a soluble iodide; and it appears to be much preferable not only to the employment of diluted hydrochloric acid, but also to acetic acid equally diluted as a collyrium, which was proposed some time ago.—*Journal de Chirurgie, par M. Malgaigne*, June, 1845.

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57. *Ophthalmia occasioned by Larvæ under the Eyelids.* By Ormond B. of Nogaro.—On the 24th of June, 1844, I was consulted by a young countrywoman, regarding an acute inflammation of her right eye. It was very red, swollen, and tearful. The affection began on the 22d; and on the 23d she consulted a surgeon, by whom she was bled without benefit. A second bleeding being proposed, the patient refused to submit, and consulted me. Upon my asking her whether she could attribute her malady to the infliction of a blow, she stated that, at 9 A.M., on the 22d, when engaged in reaping rye, she felt a slight but distinct blow on the eye, immediately after which her sufferings commenced. Having separated the eyelids, I observed a whitish spot, which, having removed, I placed on my nail to exhibit to the patient. In doing so what was my astonishment to observe the foreign body in motion. It was a small worm. Recollecting that certain flies deposit their larvæ on different parts of animals, I thought that this little insect was not perhaps alone; having placed three drops of olive oil upon the globe of the eye, I was soon able to remove ten worms in succession.

These little animals moved with incredible alacrity. They were round, pretty long, and smaller than those deposited on meat by the large blue fly. Some, with a black spot on the head, seemed to move more vigorously than the rest.

About the end of the same month of the next year, a woman brought me her son, a boy between 10 and 11, complaining of an acute itching in one eye, which had continued since the previous evening. This itching had commenced immediately after a fly had come in contact with the part. I discovered small larvæ at the bottom of the superior eyelid, and removed six of them by the method adopted in the former case. I afterwards extracted two more, after which the eye got quite well.—*Monthly Journ. Med. Sci.*, March, 1846, from *Abeille Méd.*

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58. *Chervil in Ophthalmia.*—Dr. Deval reports (*Annales d'Oculistique*) very favourably of the chervil (*anthriscus cerefolium*) in the treatment of ophthalmia. It is used as a poultice, or the eyes are washed with a saturated decoction of the plant. Dr. D. relates some cases of scrofulous ophthalmia with extreme photophobia promptly relieved by it.—*Journ. de Méd. et de Chirurg. Pratiques*, April, 1845.

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59. *Hemeralopia.*—Mr. W. B. Page relates in the *Provincial Medical and Surgical Journal*, (April 8th, 1846,) two cases of hemeralopia occurring in boys, aged 14

and 15 years, piecers in a cotton factory. This occupation consisted in constantly watching an extended surface of white cotton threads passing before them, in order that they might join those which became broken in this part of the process of cotton spinning. They were both treated with blue pill, gr. v., night and morning, with carbonate of iron, ʒss, three times a-day. Amendment commenced as soon as the system became under the influence of the mercury, and both were cured.

60. *Extraction of a Musket-ball, which had been lodged in the Orbit for twenty-four years.* By J. Bresciani de Borsa.—Felice, an old soldier of one of Napoleon's armies, was, during an engagement, struck just above the left orbit by a musket-ball, but as a comrade fell dead at the same time at his side, he believed the ball had rebounded from the orbit and killed him. For more than twenty-four years after he was continually the subject of violent pains in the left eye and to attacks of cephalalgia—the eye itself projecting much from the orbit. The numerous surgeons under whose care he placed himself from time to time, believing his tale of the rebounding of the ball, afforded him little or no relief, and in 1837, he came to the hospital at Verona. The author, upon examining the case, came to the conclusion, that the projection of the eye could only be caused by the persistence of the foreign body in the orbit, for any exfoliation of bone which the blow might have caused would, in the course of so many years (the projection commencing soon after the accident), have been discharged or removed by absorption. A portion of bone was therefore at once removed from the orbit by the trephine. The track of the ball was found ossified, excepting at a small aperture, whence issued from time to time a little fluid. After the bone was removed, the ball was felt by means of a probe at the back of the orbit and removed by means of a forceps. The eye now retreated into the orbit, and after some weeks passed into a state of atrophy. The violent pains were quite relieved, and the patient died five years afterwards only, of pleuro-pneumonia. On examination, it was found that the cranial cavity had not been penetrated by the trephine, but opposite to where the bone had been removed was a deposit of osseous substance.—*Med. Chirurg. Rev.*, April, 1846, from *Saggi di Chirurgia Teorico-Pratica.*

MIDWIFERY.

61. *Placenta Prævia.*—Mr. Howell detailed to the Medical Society of London (Feb. 23, 1846,) a case of placenta prævia, in which there was considerable hemorrhage, slight pains only, and a tolerably rigid and slightly dilated os uteri, situated high up. The placenta was over the os uteri, and partly detached. Following the plan of Dr. Simpson, the placenta was removed entirely, and from that moment the loss of blood did not exceed two ounces. At the end of nine hours the head being still high up, and no labour-pains having come on, the perforator was employed, and delivery safely effected. The mother did well. During examination per vaginam, the blood flowed down the backs of the fingers, proving that the hemorrhage was from the detached portion of placenta and not from the uterus.

Dr. Waller also related four cases, which seemed somewhat in favour of the practice of Dr. Simpson. In the first case the placenta came away five hours before the child, (an arm presentation;) there was no hemorrhage. In the second case the placenta came away before the child; the mother in both these cases did well. In the third case he was called to a woman in whom the placenta was presenting; she had lost much blood, but was able to sit up in bed. The placenta was attached nearly over the entire os uteri, but not entirely, as the funis had descended into the vagina. The placenta was entirely detached by the hand, the hemorrhage ceased, the child was delivered, and, with its mother, did well. In the fourth case, he was called after hemorrhage had gone on for many days. There was still dangerous loss of blood. The os uteri was loose, but the cervix was so contracted that two fingers only could be introduced; with these he detached the placenta, but did not remove it. Hemorrhage ceased. The arm presented. There

was no return of hemorrhage; and after waiting some hours, delivery was effected by version. The mother did well.—*Lancet*, March 14th, 1846.

62. *Intra-Uterine Perforation of Placenta.* By Thomas Taylor, Esq.—I was called yesterday morning, at four o'clock, to attend a young married woman in labour of her first child. The membranes had ruptured at four o'clock of the previous morning, but she suffered no pain until two hours before I saw her. On entering the room, I found her pains strong and effective; and on making an examination, I found a footling case with the breech in the pelvis. The pains becoming strong and expulsive, without a corresponding advance of the child, I brought down the presenting right foot, but was unable at that time to reach the other, the leg being in a position parallel with the body of the infant. The breech having been protruded, I again attempted to deliver the left leg, but on passing up my finger for that purpose, I found apparently a strong ligament, very tense, attached immediately below the knee, and which kept the limb in the position it was in, and incapable of being delivered; the arms, however, were easily brought down, and in a few minutes delivery took place, and with it the placenta: the child was still-born. On examination the placenta, which was lying on the chest of the infant, was discovered to be pierced by the right arm and left leg, the part round the leg being so firmly bound round it as to have destroyed the skin and cellular membrane by absorption; the calf of the leg was much swollen by the pressure during labour. There was no hemorrhage; on the contrary, the discharge was less than usual. The child was small, and about three weeks before its time. The mother is doing well.—*Prov. Med. and Surg. Journ.*, Jan. 7th, 1846.

63. *Retained Placenta.*—In a highly useful series of papers (published in the *Med. Times*,) upon the mechanism of uterine action, Dr. Clay, of Manchester, calls the attention of the reader to certain peculiarities in the manner in which the opposite portions of the uterus contract, in order to point out the best method of inducing expulsion of the placenta when that event does not readily take place. He shows that the two classes of uterine fibres, the longitudinal and the transverse, are essentially different in their action, and are excited by different causes, the longitudinal only being expulsive, the transverse having a dilating action. The exciting cause of the former class of muscular fibres he states to be irritation by pressure of the upper part of the vagina, and he therefore advises that, in retained placenta, the closed fist should be introduced, and pressure be made in imitation of that caused by the child's head. He gives an instance in which hour-glass contraction, a condition which is produced by inordinate action of the transverse fibres was thus overcome and the placenta liberated. The occasional retention of the placenta from its partial implantation in the Fallopian tube is commented upon by Dr. Payan.—*Ranking's Abstract.*

MISCELLANEOUS.

64. *The Plague and Quarantine Question.*—Some time since the French Academy of Medicine appointed a committee for the purpose of investigating the question of the plague, and the advantages of quarantine. M. Prus, in March last, made an interesting report on behalf of that committee, to the Academy. The following are the practical conclusions:—

The sanatary measures necessary to the security of France might be classed under five heads:—1. Indications of the countries from which the plague may be imported; 2. Precautions to be taken by ships leaving such countries; 3. Rules to be observed during their passage home; 4. Precautions to be taken on their arrival in French ports; 5. Measures to be adopted in case of the outbreak of the plague in France.

Sec. 1.—The countries from which the plague may be imported are Egypt, Syria, and Turkey in Europe and in Asia. The regencies of Tripoli and Tunis, and the empire of Morocco, must also be attentively watched. It is not necessary that the sanatary precautions should be equally rigorous at all times of the year.

Thus the fear of importation of the plague from Egypt into France may be almost altogether abandoned from the 1st of July to the beginning of November, experience having proved that the Egyptian epidemics have always broken out between November and February, and have always been arrested before the end of the month of June.

Sec. 2.—It is evident that those lands from which danger may be apprehended should be submitted to constant medical observation. For that purpose French physicians shall be appointed to reside in the various countries in which their presence may be judged necessary. Their duty shall be to visit the ships in port, to return official information to government of the sanatary condition of the country, and to collect as many documents as possible relative to the plague. The abovenamed medical officers shall deliver a foul bill of health when a pestilential epidemic shall exist in their residence. For all other cases the certificate delivered to the captain shall be a clean bill of health. The physician shall not only mention in the bill the sanatary state of the port from which the ship sails, but he shall, moreover, go on board, examine the passengers and seamen, and the hygienic conditions of the vessel; all which operations shall take place on the day previous to, or the very day of weighing anchor. The permission hitherto granted to captains not to sail for six days after the delivery of the bill of health, renders that certificate perfectly nugatory. If it were true, as the researches of the commission appear to show, that the clothes and goods of pestilential subjects cannot communicate the disorder, it is evident that no peculiar measures need be adopted relative to them; but the commission is of opinion that in this matter it is best to act with due circumspection provisionally, and until further experiments have proved the innoxious nature of contaminated goods, they shall be ventilated during their passage home; or the trunks containing the clothes and linen of the passengers and crew shall be lead-lapped at the departure of the ship, and opened only in a French lazaretto.

Sect. 3.—All ships of the royal navy, and all the mail packets coming from the Levant, shall have a physician on board, whose duty it shall be to keep a correct and circumstantial account of the sanatary condition of all persons on board; a special instruction containing the signs of the plague, its treatment, the measures best calculated to prevent the formation of centres of infection, &c., shall be placed by government in the hands of the captains of the ships unprovided with a physician.

Sect. 4.—On arrival in a French port, the bill of health and the diary of the physician shall be sent on shore and carefully examined by the medical officer of the port, who shall go on board, examine the crew, the passengers, and the ship, and report on their condition. The duration of the quarantine shall then be fixed by the competent authorities, after the examination of the bill of health, the diary, and the report. When the bill of health shall be a *clean* bill, and when the plague shall not have broken out during the passage, the quarantine shall last ten days from the date of departure. If the bill of health be a *foul* bill, the quarantine shall last fifteen days. The above regulations are applicable to the ships provided with a physician; all other ships furnished with a clean bill, and not attacked with the plague during the passage, shall undergo a quarantine of ten days from the date of arrival. The quarantine shall last fifteen days for the same ships, free from disease during the journey, but possessing only a foul bill, and the goods shall besides be landed. Any ship, whatever may be the nature of the bill of health, attacked at sea with the plague, or having on board at the time of arrival a patient affected with a complaint of a suspicious nature, shall undergo a quarantine, the duration of which shall be regulated by the sanatary authorities of the port. The crew and passengers of such ship to be confined in the lazaretto, for a period not exceeding twenty days, but not less than fifteen. The goods shall be landed and ventilated, the ship shall be cleaned, and must remain empty for one month at least; it shall be expressly forbidden to sailors, guards, &c., to go on board.

Sect. 5.—The patients affected with the plague have been hitherto treated in the lazaretto in a most unscientific and barbarous manner. The physician is forbidden to approach nearer than within twelve metres of his patient—a prohibition which the committee hopes in future will be raised. Other regulations, more in harmony with the rights of the patients and the feelings and habits of the phy-

sicians, must take the place of those rules hitherto in vigour, and which can no longer be permitted to exist. The commission proposes that all persons affected with plague, and received in a French lazaretto, shall be attended with the same care as the patients of our best hospitals. In case of death the bodies shall be dissected, and the minutes of the autopsy shall be signed by all present.

Sect. 6.—Should the plague accidentally break out in a French city, the patient shall be removed from the house of infection to a distant and well-ventilated place, where he shall receive the care he requires. The other inhabitants of the same house shall also be sent to another residence, where they shall be kept under the observation of a physician. The evacuated house shall be cleaned, and remain empty for the space of one month at least. Should several dwelling-houses be attacked, they shall be all treated in the same manner. The principle would remain the same if entire cities were attacked, and the measures above mentioned should be carried out with the utmost degree of severity.

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65. *Removal of Carbonic Acid from Wells and Cellars.*—The plan for removing carbonic acid where it is collected in such quantity as to endanger life, has hitherto consisted either in placing in the locality, vessels containing a quantity of slacked lime, mixed with water, or in causing a current of air to traverse the place where the gas is collected. The first process is slow, and the second not always practicable. M. Faucille has lately suggested an ingenious plan for entirely getting rid of this noxious gas. In sinking a well at Vichy, he found that the carbonic acid was evolved in such quantity that the works could with difficulty be carried on. All the usual means for expelling the gas were employed, including free ventilation, and the use of copious shower-baths, without success. M. Faucille then fixed upon the edge of the well a small boiler, of the form of the ancient Eoliplie, the tube from which was made sufficiently long to reach to the bottom of the excavation. This apparatus, it is well known, acts simply by producing a powerful steam blast. At first the vapour which issued was opaque, but it soon became transparent, and in about thirty minutes the well was so completely cleared of carbonic acid that the works could be resumed. The apparatus was employed until the well was completed. M. Faucille has also used this machine for removing the vapours of sulphuretted hydrogen gas; and it is obvious that it may be easily and safely employed for expeditiously removing noxious gases from drains, sewers, shafts of mines, and other excavations.

If a steam engine were at hand a blast of steam carried from this into the vitiated atmosphere would equally answer the purpose. The Eolipile is nothing more than a portable steam boiler.—*Lond. Med. Gaz.*, May, 1846.

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66. *New Sign of Death.*—M. Ripault has lately directed the attention of the Academy of Sciences to a new sign of death. This is, *perfect flaccidity of the iris* when the globe of the eye is compressed in two opposite directions. If the individual be living, the pupil retains its circular form, notwithstanding the compression. If dead, the aperture becomes irregular, and the circular form is lost.—*Ibid.*

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Case of Lithotrity, performed by Dr. J. Randolph. Reported by A. E. Stocker, M. D., Physician to the Pennsylvania Institution for the Instruction of the Blind, and to the Philadelphia Dispensary, &c.

Having recently enjoyed an opportunity of witnessing the operation of lithotrity, performed by Dr. Randolph, of this city, and being thoroughly convinced of the great advantages possessed by this operation over the several methods of cutting usually resorted to for the relief of patients afflicted with calculus, I am induced to send you the following notes for publication, hoping that they may prove useful and interesting to the readers of your valuable journal.

Mr. A. H. B....., æt. 30, clerk in a forwarding house in this city, of good constitution and temperate habits, had been afflicted with stone in his bladder for nearly two years. His sufferings of late have greatly increased: he had an attack of swelled testicle about five months ago, a stricture also, and an ulcer just within the meatus urinarius, which gave rise to a considerable discharge of purulent matter. Dr. Randolph having previously fully dilated the stricture, on the 12th day of March, 1846, at 11 A. M., in presence of Dr. Goddard and myself, proceeded to operate. The patient being properly arranged on the side of the bed, his bladder was first emptied by drawing off the urine by the catheter; next, tepid water was injected into it, in as large quantity as it would conveniently bear. The sound being now introduced, Dr. R. detected the stone on the left side of the bladder. Withdrawing the sound, Dr. R. then introduced Heurteloup's instrument, and succeeded in catching the calculus almost immediately; its diameter measured about one and three-quarter inches, and was crushed by a few turns of the screw. A large fragment was again seized and crushed in like manner. The operation lasted but two or three minutes, and was free from pain! The patient rose up immediately after it and dressed himself. Upon sitting in an easy rocking-chair, he observed to us the difference between his present and former sensations upon rocking to and fro, hitherto having always been able to feel the calculus moving backwards and forwards, but now was entirely free from that sensation. In about ten minutes after the operation, he passed a considerable quantity of water, a great deal of sand and large fragments of stone. So soft was the stone in this case, we were entirely satisfied that, had lithotomy been resorted to, the most gentle use of the forceps for its extraction would have crushed it at once, and have obliged a resort to the scoop, and injections to wash out the sand and fragments, and even then without any certainty of the bladder being entirely freed from all fragments of stone. The patient continued to pass considerable quantities of calculous matter, many pieces being of large size, and on Wednesday the 18th, Dr. Randolph operated as before, seizing and crushing the stone three times; during the day, the patient passed numerous pieces of calculi, many of which were of large size. By noon of the following day, the patient had discharged per urethram a large tablespoonful of calculous matter.

On the following Tuesday, March 24th, at 11 A. M., the operation was

repeated. Dr. R. decided in the present instance not to inject fluid into the bladder, as the patient could now retain his urine for several hours. The sound being introduced, and having detected the location of the calculus, a different instrument, (being a modification of Heurteloup's,) and better calculated to seize and crush fragments of stone, was introduced; the stone was seized and crushed several times, and the instrument withdrawn filled with calculous matter; soon afterwards, the patient voided large quantities of stone.

Saturday, March 28th, at 11 A. M., the operation was for a third time repeated; the bladder was not injected; the stone was immediately caught and crushed five times in succession. On the following day the patient expressed himself almost well, and desirous of returning to his accustomed vocation.

On Wednesday, April 1st, the operation was repeated. As before, the bladder was not injected; fragments of stone were caught and crushed six times; the same instrument was used upon this occasion as upon the last, and was withdrawn full of calculous matter. The patient continued for several days to pass portions of stone and sand, upon every occasion expressing more relief and benefit from the operation. At the end of the following week, he asked permission to resume his duties in the counting-room, which was readily acceded to, as there seemed no longer to be any contraindication.

Tuesday, April 28th. The bladder was carefully sounded by Dr. Randolph, Dr. Goddard, and myself, and was found entirely free from all calculous matter. The patient also expressed his full conviction that he was completely cured: he is now enabled to retain his water as well as he ever could.

The amount of stone voided fills a box two and a half inches in diameter, and a half inch deep, although many of the smaller fragments and sand have inevitably been lost, in emptying from one vessel to another.

The facts of the above case suggest many considerations:

1st. As to the operation: its entire freedom from pain under favourable circumstances, especially if compared with that of lithotomy.

2d. The length of time necessary to a cure. In the present case, the patient was not confined to his bed for a single hour, nor had more than four weeks elapsed from the commencement of the treatment until the patient returned to the duties of his situation; while, under the most favourable circumstances, if lithotomy had been resorted to, four, six, or eight weeks would have been a moderate term for confinement to a bed, rendered doubly irksome by the unpleasant discharges which even the most exemplary cleanliness cannot prevent from adding in a greater or less degree to the discomfort of the patient.

3d. The freedom from danger. When carefully and skillfully performed there is in this operation but little danger, while the utmost skill and tact of the surgeon are of no avail in many cases to arrest the hemorrhage and other fearful consequences so frequently attendant upon the operation of lithotomy.

Another and by no means a trifling advantage of the operation of lithotrity over lithotomy, is the fact of no paralysis of the bladder and incontinence of urine resulting from the former of the two operations; a sequel to the latter, however, most bitterly and unavailingly deplored by the unhappy sufferers.

In conclusion, I would remark, it is a source of deep regret that circumstances have prevented the publication of many other cases of lithotrity

most successfully performed by the same skilful and distinguished surgeon; a knowledge of which would prove to the most prejudiced observer, the immense importance to be attached to this operation, and its great advantages over the operation of lithotomy.

Philadelphia, May, 1846.

Description of a new Instrument for cauterizing the Urethra in cases of Spermatorrhœa. By. F. Campbell Stewart, M. D.

Having frequently experienced great inconvenience in the use of Lallemand's instrument for cauterizing the urethra, from being obliged to go through the tedious process of pulverizing, melting, and scraping the caustic—a process attended with considerable trouble where the instrument has to be frequently used—before it could be properly prepared, it occurred to me that these difficulties might be obviated by having the instrument so constructed as to permit the use of cylinders of the caustic which could be at all times kept prepared and ready to arm the instrument at a moment's notice. I accordingly requested our ingenious instrument-maker, Mr. George Tiemann, to fabricate for me such a *porte caustique* as is represented by the accompanying wood-cut. Small cylinders of nitrate of silver were cast for me by my apothecary, Mr. Frey, to fit the canula into which they were intended to be introduced, and I have continued to use the instrument altogether for the last two years as a substitute for, and, as I think, an improvement on that of Dr. Lallemand.

The instrument is made in all respects similar to that of Lallemand, except at its extremity, where a small hollow canula, made of platina, and presenting two fenestral or small longitudinal openings, is contrived to screw on the chain stylet passing through the long canula or catheter, Fig. 1. This is the portion intended to hold the caustic cylinder, and is arranged so as to open by its own elasticity, as in Fig. 2, or by a small hinge as in Fig. 3. In all other respects it is similar to, and should be used as the foreign instrument.

National Medical Convention.—We invite especial attention to the minutes of the Proceedings of the National Medical Convention inserted below. The results of this meeting are altogether gratifying. The mere bringing together of so many members of the profession from different parts of our country, was in itself a great achievement, when the sacrifices which medical men incur in leaving their business is considered, and in the present case it is even the greater from the unpropitious auspices under which they were convened. Various previous attempts of a similar kind having signally failed, distrust of the success of the present one naturally prevailed, paralyzing action, or causing postponement in the appointment of delegates, —many associations waiting for the action of others, whose concurrence was deemed necessary to success; and finally, to complete the discouragement, denunciations of the objects of the convention and vituperations of its originator, were sent forth from the very hall in which the convention had been invited to assemble. Nevertheless, sixteen States were represented, and nearly one hundred delegates assembled. Indeed, in numbers and respectability, the convention exceeded the anticipations of the most sanguine; while the zeal and spirit displayed, and the courtesy and dignity which characterized its deliberations, were in the highest degree honourable.

A foundation has now been laid, and if a suitable superstructure be hereafter erected upon it, an enduring citadel will be constructed, which will serve for the protection of the honour and interests of the profession against assaults from any quarter.

The next meeting will be held in Philadelphia, on the first Wednesday in May next, and we earnestly urge the *early appointment* of delegates not only for the beneficial influence of example, but also that those who may be appointed, may have ample time to ponder well upon the important questions they will be then called upon to decide.

Minutes of the Proceedings of the National Medical Convention, held in the City of New York, in the month of May, 1846.

Tuesday, May 5th, 1846.

At a meeting of the National Medical Convention, pursuant to the call of the New York State Medical Society, convened in the building of the Medical Department of the University of the city of New York, on motion of Dr. Edward Delafield, of New York, Dr. Bell, of Philadelphia, was appointed Chairman, and Dr. Buel, of New York, Secretary, to act until the Convention be duly organized.

Drs. Baxley, of Maryland, Davis, of New York, and Arnold, of Georgia, were appointed a committee to receive the credentials of Delegates.

The Committee, after having performed that duty, made the following report:—

The Committee appointed to examine the credentials of the Delegates to the National Medical Convention, recommended to be held by the New York State Medical Society, in the city of New York, report, that they have performed that duty.

The Committee have felt themselves embarrassed by conflicting resolutions passed by the New York Society in 1845 and 1846, viz.: in 1845, it was "*Resolved*, that the New York State Medical Society earnestly recommend a *National Convention of Delegates* from Medical Societies and Colleges in the whole *Union*, to convene in the city of New York, on the first Tuesday in May, in the year 1846, for the purpose of adopting some *concerted action* on the subject set forth in the foregoing preamble."

In February, 1846, it was "*Resolved*, That the preamble and resolutions passed by this Society at its annual session, Feb. 6, 1845, did not contem-

plate the appointment of Delegates to the National Convention, by County or merely local Societies in those States where Delegates *are* appointed by a regularly organized *State* Society."

They have therefore thought proper to report the names of all gentlemen from Medical Societies, Colleges, and Institutions, of all the States who come properly accredited, in accordance with the original resolution, and leave it to the Convention to determine whether such shall constitute the National Medical Convention; or whether the interpretation of the resolution of 1845, adopted by the N. Y. Society in 1846, which excludes delegates from local or voluntary societies from States sending delegates from regularly organized State Societies shall be strictly adhered to.

Respectfully submitted, H.W. Baxley, N. S. Davis, Richard D. Arnold.

The following list of Delegates was then handed in:—

From Vermont.—*Society of the Alumni of Castleton Medical College.*—Drs. Simeon A. Cook, Joseph Perkins, Egbert Jamieson, Horace Green.

Vermont Medical College.—Dr. Alonzo Clark.

From New Hampshire.—*Centre District N. H. Medical Society.*—Drs. Charles P. Gage, Richard P. J. Tenney.

From Massachusetts.—*Berkshire Med. Institute.*—Dr. Alonzo Clark.

From Connecticut.—*State Medical Society.*—Drs. V. M. Dow, Rufus Blakeman, William H. Cogswell, J. G. Beckwith, Eleazar Hunt, D. T. Brainard, Richard Warner.

Medical Institute of Yale College.—Drs. J. Ives, J. Knight.

From New York.—*Medical Society of City and County of New York.*—Drs. James R. Manley, Isaac Wood, John W. Francis, Benjamin Drake, Gilbert Smith, W. W. Minor, F. U. Johnston, James Stewart, Thomas Chalmers, H. D. Bulkley, W. P. Buel, J. R. Wood, John S. Heard, A. N. Gunn, B. R. Robson, John Watson, J. S. Ferguson, R. L. Morris, R. T. Underhill, S. P. White, J. R. Van Kleek, J. C. Cheeseman, A. C. Post, G. Buck, O. S. Bartles.

N. Y. Medical and Surgical Society.—Drs. F. Campbell Stewart, J. A. Swett, Edward L. Beadle.

Bloomingdale Asylum.—Dr. Pliny Earle.

Kings Co. Medical Society.—Drs. Chauncey L. Mitchell, Bradley Parker, J. Sullivan Thorne, T. L. Mason.

Alumni Geneva Medical College.—Drs. Peter Wilson, H. M. Gray.

Medical Faculty of College of Physicians and Surgeons.—Drs. John B. Beck, Willard Parker.

Medical Society of State of New York.—Drs. John Stearns, Stephen Hasbrouck, Merrit H. Cash, S. M. Crawford, Joel A. Wing, Daniel Ayres, Darius Clark, Thos. W. Blatchford, Sumner Ely, John McCall, N. S. Davis, Augustus Willard, L. G. Tefft, Alexander McIntyre, Maltby Strong, Charles Winnie.

Madison Co. Medical Society.—Dr. D. E. Hurd.

New York Hospital.—Dr. J. H. Griscom.

University of the City of N. York.—Drs. G. S. Pattison, G. S. Bedford.

Buffalo Medical Association.—Dr. Bryant Burwell.

Erie Co. Medical Society.—Dr. Austin Flint.

Albany Medical College.—Drs. J. McNaughton, A. March.

Genesee Medical Society.—Dr. John Coates.

Trustees of the College of Physicians and Surgeons.—Drs. A. H. Stevens, Thomas Cock, Edward Delafield.

Geneva Medical College.—D. Charles A. Lee.

From Pennsylvania.—*Philadelphia Medical Society.*—Drs. John Bell,

Henry Bond, Geo. W. Norris, Isaac Hays, Isaac Parrish, Joseph Warrington, Alfred Stillé, J. Rodman Paul, Francis West, Gouverneur Emerson, Caspar Morris, Meredith Clymer.

Medical Department of Pennsylvania College.—Drs. H. S. Patterson, W. A. Atlee.

From DELAWARE.—*Medical Association of Wilmington.*—Dr. Lewis P. Bush.

Medical Society of Delaware.—Drs. James W. Thompson, E. S. Rickards, William W. Stuart, William Cummins, Gove Saulsbury, James Couper, ——— Morris.

From MARYLAND.—*Washington Medical College.*—Drs. H. W. Baxley, Charles Bell Gibson.

From VIRGINIA.—*Medical Society of Virginia.*—Drs. Robert W. Haxall, Samuel A. Patteson, Charles Mills, Frederick Marx, James Conway, J. Cullen.

From GEORGIA.—*Georgia Medical Society.*—Dr. Richard D. Arnold.

From MISSISSIPPI.—*Mississippi State Medical Society.*—Drs. E. D. Fenner, of New Orleans, C. S. Magoun.

From INDIANA.—*La Porte University.*—Dr. Azariah B. Shipman.

From ILLINOIS.—*Medical Department of Illinois College.*—Dr. Edward Mead.

From TENNESSEE.—*Medical Society of Tennessee.*—Dr. Wm. A. Cheatham.

It was on motion *Resolved*, that the Committee be continued to receive the credentials of such Delegates as may hereafter arrive.

On motion of Dr. Arnold, it was *Resolved*, that all gentlemen who have presented credentials from any regularly organized Medical Society in this Union, be considered members of this Convention.

It was moved by Dr. Davis, and carried, that Dr. Theophilus C. Dunn, President of the Rhode Island State Medical Society, be invited to take a seat as a member of this Convention.

It was moved by Dr. Underhill, and duly seconded, that all medical gentlemen in good standing, who may be present from States not otherwise represented, be admitted as delegates, which motion was carried.

Drs. E. C. Marsh, and Lyndon A. Smith, of New Jersey, were invited to take seats under the above resolution.

On motion, a Committee of one from each State represented in the Convention, was appointed to nominate officers for the Convention.

The following gentlemen were appointed:

From New Hampshire, Dr. Gage; Vermont, Cook; Massachusetts, Clark; Rhode Island, Dunn; Connecticut, Knight; New York, Stearns; New Jersey, Marsh; Pennsylvania, Bond; Delaware, Bush; Maryland, Baxley; Virginia, Haxall; Georgia, Arnold; Mississippi, Fenner; Indiana, Shipman; Illinois, Mead; Tennessee, Cheatham.

The Committee, after having retired, returned and made the following report:

The Committee appointed to nominate suitable officers to preside over the Convention, report that they have unanimously agreed to propose the names of the following gentlemen:—

For President.—Dr. J. Knight, of New Haven.

For Vice Presidents.—Dr. John Bell, of Philadelphia; Dr. Edward Delafield, of New York City.

For Secretaries.—Dr. Richard D. Arnold, of Savannah; Dr. Alfred Stillé, of Philadelphia.

The Report was adopted:—*Committee discharged.*

The officers, with the exception of Dr. Delafield, took their seats.

Dr. Bedford, of the University of the city of New York, moved the following preamble and resolution, seconded by Dr. Pattison, also of the University of the city of New York:—

Whereas, the call of the State Medical Society of New York, for a National Medical Convention to be held in the city of New York, on the first Tuesday in May, has failed in a representation from one-half the United States, and from a majority of the Medical Colleges; and whereas the State Medical Society has emphatically stated that there is no mode of accomplishing the object of the Convention, without concert of action on the part of the Medical Societies, Colleges and Institutions of *all* the States, therefore, Resolved, that this Convention adjourn *sine die.*

The Yeas and Nays were called on this, and were as follows:—

Yeas—Drs. Bedford and Pattison—2.

Nays—Drs. S. A. Cook, H. Green, C. P. Gage, R. P. J. Tenney, A. Clark, W. H. Cogswell, J. G. Beckwith, R. Warner, D. T. Brainard, B. Burwell, A. Flint, J. McNaughton, A. March, J. Coates, F. C. Stewart, J. A. Swett, E. L. Beadle, C. A. Lee, J. Bell, H. Bond, G. W. Norris, I. Hays, I. Parrish, J. L. Warrington, A. Stillé, J. R. Paul, F. West, G. Emerson, M. Clymer, W. A. Atlee, L. P. Bush, E. S. Rickards, G. Saulsbury, J. Couper, H. W. Baxley, R. W. Haxall, S. A. Patteson. J. Cullen, R. D. Arnold, E. D. Fenner, A. B. Shipman, E. Mead, W. A. Cheatham, P. Wilson, D. E. Hurd, I. Wood, G. Smith, H. D. Bulkley, W. P. Buel, J. R. Wood, J. S. Heard, A. N. Gunn, J. Watson, R. L. Morris, R. T. Underhill, S. P. White, J. C. Cheeseman, A. C. Post, G. Buck, O. S. Bartles, S. Hasbrouck, J. A. Wing, D. Ayres, N. S. Davis, A. Willard, P. Earle, T. Cock, C. L. Mitchell, J. S. Thorne, T. S. Dunn, E. J. Marsh, L. A. Smith, W. W. Stuart, and J. Knight—74.

Dr. Clymer then offered the following resolution:—

Resolved, That a Committee be appointed to provide other accommodations for the sittings of this Convention, than in the University of New York.

Several amendments were offered to this resolution, but while they were pending, Dr. Haxall moved to lay the whole upon the table, which was carried—Yeas 34, Nays 31.

Dr. N. S. Davis moved the following, which was adopted:—

Resolved, That a Committee of nine be appointed to bring the subject of Medical Education before the Convention in the form of distinct propositions, suitable for discussion and action, and that it report at the next meeting.

The following gentlemen were appointed:

Drs. N. S. Davis, March, Hays, Watson, Brainard, Stearns, Bush, Haxall, Bell.

On motion of Dr. J. R. Wood, of New York, the President was added to the Committee.

Dr. Buel offered the following, which was adopted:

Resolved, That the Committee be instructed to receive and submit propositions on all subjects proper to be brought before this Convention.

On motion the Convention adjourned until 10 o'clock next morning.

Wednesday, May 6th.

The Convention met pursuant to adjournment. The roll was called, and 63 delegates answered to their names. The minutes of the last meeting

were then read and confirmed. The Chairman of the Committee on Credentials announced the presence of Dr. C. A. Pope, delegate from the Medical Society of the State of Missouri, and of Drs. Anderson, G. Dana, J. Spaulding, and J. A. Allen, delegates from the Vermont Medical Society.

Dr. N. S. Davis, Chairman of the Committee, appointed at the last meeting to present the subject of Medical Education to the Convention in a form proper for discussion, and, generally, to prepare business for its action, reported that, owing to the short time allowed them, the Committee had not been able to agree in regard to the subject especially entrusted to them, but that they had unanimously determined to lay before the Convention certain resolutions which they believe adapted to fulfil the immediate objects contemplated by the Convention.

Whereupon Dr. Hays, from the same Committee, submitted the following preamble and resolutions:

Whereas, it has been shown by experience, that the Association of persons engaged in the same pursuit, facilitates the attainment of their common objects, therefore—

1st. *Resolved*, that it is expedient for the medical profession of the United States, to institute a *National Medical Association*, for the protection of their interests, for the maintenance of their honour and respectability, for the advancement of their knowledge, and for the extension of their usefulness.

2d. *Resolved*, that a Committee of seven be appointed to report a plan of organization for such an Association, at the meeting to be held in Philadelphia, on the first Wednesday in May, 1847.

3d. *Resolved*, that a Committee of seven be appointed to prepare and issue an address to the different regularly organized Medical Societies and chartered Medical Schools in the United States, setting forth the objects of the National Medical Association, and inviting them to send delegates to a Convention, to be held in Philadelphia, on the first Wednesday in May 1847.

4th. *Resolved*, that it is desirable that a uniform and elevated standard of requirements for the degree of M. D., should be adopted by all the medical schools in the United States, and that a Committee of seven be appointed to report on this subject at the meeting to be held in Philadelphia, on the first Wednesday in May, 1847.

5th. *Resolved*, that it is desirable that young men, before being received as students of medicine, should have acquired a suitable preliminary education, and that a Committee of seven be appointed to report on the standard of acquirements which should be exacted of such young men, and to report at the meeting to be held on the first Wednesday in May, 1847.

6th. *Resolved*, that it is expedient that the medical profession of the United States should be governed by the same code of Medical Ethics, and that a Committee of seven be appointed to report a code for that purpose, at the meeting to be held at Philadelphia, on the first Wednesday in May, 1847.

Dr. J. S. Copes was announced to be a duly authorized delegate from the Medical Society of Mississippi; and Dr. G. H. White, of the Hudson Lunatic Asylum, was admitted to a seat in the Convention.

Dr. G. S. Pattison moved that the Report of the Committee on Business be adopted. Carried, *nem. diss.*

Dr. Stearns moved that the resolutions be considered *seriatim*. Carried.

The preamble and 1st resolution were then adopted *nem. diss.*

The 2d resolution being under discussion, Dr. S. Hasbrouck moved that

the committee to be appointed under that resolution, report on to-morrow morning. After some remarks by Drs. Haxall, Thompson, and Davis, the motion was withdrawn.

Dr. Griscom moved that the next Convention be held in September, 1847. After some remarks by delegates from the South, declaring that physicians of that region could not possibly be spared from their duties in the autumn, the motion was rejected.

The 2d resolution and then the 3d, were adopted without further discussion, *nem. diss.*

Dr. F. Hasbrouck, as Superintendent of the N. Y. City Lunatic Asylum, was here admitted to a seat in the Convention.

The 4th resolution was then adopted, *nem. diss.*

The 5th resolution, after some observations from Drs. Manley and H. S. Patterson, and the loss of an amendment proposed by the latter gentleman, was adopted, *nem. diss.*

The 6th resolution was in like manner adopted, without debate; after which, on motion of Dr. Bush, the preamble and resolutions collectively were unanimously adopted.

The Convention then took a recess for half an hour, after empowering the President to fill the Committees called for by the resolutions just passed.

On re-assembling, the Convention received Dr. G. Sumner, a delegate from the Medical Society of Connecticut.

Dr. Clymer asked and received permission to correct an error personal to himself in a report of a morning newspaper (the N. Y. Herald,) concerning the vote on Dr. Haxall's motion to lay on the table the resolution offered by Dr. Clymer for adjourning forthwith from the rooms of the Faculty of the University of New York city. The newspaper in question had stated that the only serious opposition to laying this resolution on the table proceeded from the delegates of the College of Physicians and Surgeons, whereas the vote had really stood 34 in favour, and 31 against disposing of the resolution in this manner.

Dr. J. B. Beck, of the Faculty of the College of Physicians and Surgeons, stated that so far from any opposition to laying the resolution on the table having proceeded from the body which he represented, neither he nor his colleague, Dr. Parker, the only delegates from that body, were even so much as present during the discussion, or at the vote, on the resolution.

The Secretary asked permission to insert the correction in the minutes of the last meeting as confirmed; stating that the vote was upon the original record of the proceedings, but had been omitted in transcription. Leave was granted.

Dr. Sumner moved to reconsider the 2d resolution; the motion, after remarks by Drs. Baxley, Haxall, and Davis, was laid on the table.

Dr. Bartles introduced the following resolution:

Resolved, That the union of the business of *Teaching* and *Licensing* in the same hands is wrong in principle, and liable to great abuse in practice. Instead of conferring the right to license on Medical Colleges, and State and County Medical Societies, it should be restricted to one Board in each State, composed in fair proportion of representatives from its Medical Colleges and the profession at large, and the pay for whose services as Examiners should in no degree depend on the number licensed by them.

Dr. Sumner moved to lay the resolution on the table. After remarks by Drs. F. C. Stewart and Clymer, the motion was withdrawn.

Dr. Parrish moved that the resolution be referred to the Committee under the 4th resolution reported by the Committee on Business.

Dr. Baxley moved an amendment, which was accepted by Dr. Parrish, providing that all communication upon the subject of medical degrees be referred to the same Committee.

Dr. Manley remarked at length upon the subject of Medical Education. Dr. Baxley replied. Dr. Manley rejoined; and then moved to refer the resolution introduced by Dr. Bartles to a special Committee.

On motion, the subject was temporarily laid upon the table in order that the President might announce the Committees he had appointed.

They were as follows:

Under the 2d Resolution.—Drs. J. Watson, J. Stearns, F. C. Stewart, N. Y.; A. Stillé, Philadelphia; N. S. Davis, Binghampton, N. Y.; Cogswell, N. Haven, Conn.; Fenner, New Orleans.

Under the 3d Resolution.—Drs. E. Ives, Dow, and Sumner, of N. Haven, Conn.; J. McNaughton, Albany, N. Y.; Blatchford, Troy, N. Y.; Burwell, Buffalo, N. Y.; and Baxley, Baltimore, Md.

Under the 4th Resolution.—Drs. Haxall and Cullen, Richmond, Va.; S. A. Patteson, Manchester, Va.; G. W. Norris, Philadelphia; A. Flint, Buffalo, N. Y.; J. Perkins, Castleton, Vt.; and J. A. Wing, Albany, N. Y.

Under the 5th Resolution.—Drs. J. Couper, Newcastle, Del.; L. P. Bush, and J. W. Thompson, Wilmington, Del.; E. Mead, Jacksonville, Ill.; A. March, Albany, N. Y.; J. Atlee, Philadelphia; and D. T. Brainard, New London, Conn.

Under the 6th Resolution.—Drs. Bell, Hays, and Emerson, Philadelphia; Morris, Dover, Del.; T. C. Dunn, Newport, R. I.; Alonzo Clark, N. Y.; and R. D. Arnold, Savannah, Ga.

Dr. Haxall moved that the President be added, as Chairman to the Committee under the 3d resolution. Carried unanimously.

The consideration of Dr. Bartles' resolution, as amended by Dr. Manley, was then resumed, and it was ordered that when the vote upon it is taken, it be taken by yeas and nays.

Drs. S. Hasbrouck and Davis remarked at length upon the subject of the resolution. Observations were also made by Drs. Baxley, and Underhill.

Dr. Sumner moved to lay the Resolution on the table. Lost by a vote of 34 to 40.

Dr. Parrish having withdrawn his amendment, the yeas and nays on Dr. Bartles' resolution, as amended by Dr. Manley, were called, when it was adopted by the following vote:

Yeas.—Drs. Arnold, Ayres, Bartles, Beadle, Beck, Bell, Bulkley, Burwell, Bond, Buck, Buel, Cheeseman, Cock, Coates, Copes, Cummins, Cook, Davis, Delafield, Drake, Fenner, Ferguson, Gage, Gray, Griscom, Gunn, F. Hasbrouck, S. Hasbrouck, Heard, Magoun, McNaughton, Mitchell, R. L. Morris, B. Parker, W. Parker, Paul, Parrish, Pope, Rickards, Saulsbury, F. C. Stewart, W. W. Stuart, L. A. Smith, Stillé, Stearns, Swett, Thorne, Underhill, Van Kleek, Warner, Watson, Warrington, West, Willard, S. P. White, G. H. White, Wing, J. Wood, J. R. Wood.—59.

Nays.—Drs. Baxley, Beckwith, Bedford, Blakeman, Brainard, Bush, Cheatham, A. Clark, Clymer, Couper, Cullen, Emerson, Flint, Gibson, Hays, Haxall, Lee, March, H. S. Patterson, G. S. Pattison, S. A; Patteson, Shipman, Sumner, Thompson.—24.

Dr. Griscom moved that a Committee of *five* be appointed to consider the *expediency*, and if expedient, the *mode*, of recommending and urging upon the several State governments the adoption of measures for a registration of the births, marriages, and deaths, of their several populations. Carried, *nem. diss.*

Dr. Magoun moved that the thanks of the Convention be presented to the officers of this Convention, for the prompt and efficient discharge of their duties. Carried, *nem. diss.*

Dr. Griscom introduced the following resolution:

Resolved, That Mr. Lemuel Shattuck, of Boston; Drs. Jarvis, of Dorchester, Mass.; Emerson, of Philadelphia; T. R. Beck, of Albany; and C. A. Lee, of N. Y.; be a Committee to prepare a nomenclature of diseases, adapted to the United States, having reference to a general registration of deaths; to report to a future Convention, which was adopted; and on motion, Dr. Griscom was added to the Committee as Chairman.

Dr. Swett, of N. Y., offered the following, which, after receiving the approbation of the delegates from New York, was adopted:

Resolved, That a publication of the proceedings of this Convention be made in pamphlet form; that ten thousand copies be printed; that the New York City delegation assume the expense; and that it be referred to the first Standing Committee.

The President then announced the Committees appointed by him, under the resolutions of Dr. Bartles, and of Dr. Griscom, as follows:—

Under Dr. Bartles, in reference to the separation of teaching and licensing: Drs. McNaughton, Albany, N. Y.; J. R. Manley, N. Y.; J. W. Francis, N. Y.; Isaac Parrish, Philada.; R. Blakeman, Fairfield, Conn.; J. Cullen, Richmond, Va.; and Thomas Cock, N. Y.

Under that of Dr. Griscom, in reference to the subject of registration: Drs. J. H. Griscom, N. Y.; G. Emerson, Philada.; A. Clark, N. Y.; C. A. Lee, Geneva, N. Y.; and James Stewart, N. Y.

The following resolution, offered by D. Thomson, of Delaware, and seconded by Dr. Clymer, of Philadelphia, was unanimously adopted:

Resolved, That this Convention hereby tender to the Medical Faculty of the City of New York, and to the Trustees of the College of Physicians and Surgeons of the State of New York, its unanimous thanks for the courteous offer of their respective buildings for the sitting of this Convention.

Dr. Bell introduced the following resolution, which was adopted, *nem. diss.*

Resolved, That the Convention give its approval to the objects and labours of the Sydenham Society.

Dr. Cogswell offered the following resolution, which was unanimously adopted:

Resolved, That the thanks of this Convention be presented to the President, for the able, gentlemanly, and impartial manner in which he has discharged the duties of the Chair.

Upon motion of Dr. Hays, the Convention then adjourned, *sine die.*

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Second Meeting of the Association of Medical Superintendents of American Institutions for the Insane.—The Association of Medical Superintendents of American Institutions for the Insane, held its second meeting at Coleman's hotel, in the city of Washington, on the 11th of May, 1846, the President, Samuel B. Woodward, M. D. in the chair, and Thomas S. Kirkbride, M. D., Secretary.

Present.—Dr. Samuel B. Woodward, of the Massachusetts State Lunatic Hospital, Worcester.

Dr. James Bates, of the Maine Insane Hospital, Augusta.

Dr. Andrew McFarland, of the New Hampshire State Hospital, at Concord.

Dr. William H. Rockwell, of the Vermont State Hospital, at Brattleboro.

Dr. Luther V. Bell, of the McLean Asylum for the Insane, at Somerville, Mass.

Dr. C. H. Stedman, of the Boston Lunatic Asylum.

Dr. N. Cutter of the Pepperell Asylum, Mass.

Dr. George Chandler, of the Massachusetts State Lunatic Hospital, at Worcester.

Dr. John S. Butler, of the Connecticut Retreat, at Hartford.

Dr. Amariah Brigham, of the New York State Lunatic Asylum, at Utica.

Dr. Pliny Earle, of the Bloomingdale Asylum, New York.

Dr. G. H. White, of the Hudson Lunatic Asylum, New York.

Dr. James Macdonald, of the Private Institution, Flushing, at New York.

Dr. Thomas S. Kirkbride, of the Pennsylvania Hospital for the Insane, Philadelphia.

Drs. Stewart and Fonerden of the Maryland Hospital.

Dr. J. P. Stokes, of the Mount Hope Asylum, at Baltimore.

Dr. William M. Awl, of the Ohio State Hospital, at Columbus.

Dr. John M. Galt, of the Eastern Asylum of Virginia, at Williamsburgh.

Dr. J. W. Parker, of the South Carolina Hospital, at Columbia.

Dr. Walter Tellfer, of the Lunatic Hospital, at Toronto, Canada.

Dr. William M. Awl, of the Ohio State Hospital, was elected Vice-President of the Association, in the place of Dr. Samuel White, of Hudson, deceased.

Reports were received and read from various committees, appointed at the last meeting of the Association. On the subject of the Moral Treatment of Insanity by Dr. Brigham; on the Medical Treatment of Insanity by Dr. Woodward; on Restraint and Restraining Apparatus by Dr. Bell; on the Construction of Hospitals for the Insane, by Dr. Awl; on the Jurisprudence of Insanity, by Dr. Ray; on the Organization of Hospitals for the Insane, by Dr. Kirkbride; on the Statistics of Insanity, by Dr. Earle; on Asylums for Idiots and the Demented by Dr. Brigham; on Chapels and Chaplains in Insane Hospitals, by Dr. Butler; on Post-mortem Examinations, by Dr. Kirkbride; on Asylums for Coloured Persons, by Dr. Gall; on the Proper Provision for Insane Prisoners, by Dr. Brigham. An essay on the Construction of Hospitals for the Insane, was also read by Dr. Bell, and the subjects embraced in the reports were fully discussed by the members of the association.

The following preamble and resolutions were adopted: Whereas, since the last meeting of this association, Dr. Samuel White, of New York, the venerable and highly respected late vice-president of this association has died: Therefore

Resolved, That by the death of Dr. White, this association and the medical profession have lost an esteemed and valued member, and the cause of humanity, a useful and active friend. Particularly have the friends of the insane reason to mourn his loss, as he had long been successfully engaged in relieving the sufferings of this afflicted class of his fellow beings, and by his labours and his writings essentially aided in improving their condition.

Resolved, That we deeply sympathize with the surviving members of

his family, and recall, at the present time, the excellencies of his character, his useful precepts, and the worthy example he presented of a gentleman, physician, and Christian, devoted to deeds of goodness, and whose long and active life was spent in promoting the welfare of his fellow men.

Resolved, That Dr. Brigham be requested to prepare an obituary notice of the late Dr. White, to be entered upon the minutes of the association, and to be published.

Resolved, That the secretary of this association present a copy of these resolutions to the nearest relative of the deceased.

The following resolutions were also adopted by the association during its different sessions.

Resolved, That the resolution of the last meeting, relative to members of the association, be so amended as to read as follows: That the medical superintendents of the various incorporated or other legally constituted institutions for the insane, now existing on this continent, or which may be commenced prior to the next meeting, and all those who have heretofore been medical superintendents and members of this association, or who may be hereafter appointed to these stations, be and they are hereby constituted members of the association.

Resolved, That in future, each regularly constituted institution for the insane on this continent may have one representative in this association; that as heretofore this shall be the medical superintendent, where such officer exists, but in those institutions in which there is a different organization, it may be either of the regular medical officers who may find it most convenient to attend.

Resolved, That the subjects upon which committees were appointed at the first meeting of the association, be continued, each in the hands of the chairman of the respective committees, to be reported upon at the next meeting.

Resolved, That in addition, each one of the following subjects be confided to a single member of the association, who is hereby requested to report at the next meeting of the association.

1. Treatment of Incurables, Dr. Macdonald.
2. Is there any relation between Phrenology and Insanity, Dr. Fonerden.
3. The Classification of Insanity, Dr. Earle.
4. The Admission of Visitors into the halls of the Patients, Dr. Ray.
5. Visits to, and Correspondence with Patients by their friends, Dr. Stokes.
6. The Comparative Value of the different kinds of Manual Labour for Patients, and the best means of employment in winter, Dr. Rockwell.
7. The proper Number of Patients for one Institution, Dr. Brigham.
8. The utility of Night Attendants, and the propriety of not locking Patients doors during the night, Dr. Chandler.
9. The Advantages and Disadvantages of Cottages for wealthy Patients, adjacent to Hospitals for the Insane, Dr. Kirkbride.
10. The Relative Value of the different kinds of Fuel for heating Hospitals, Dr. Bates.
11. Insanity and the Condition of the Insane in the British provinces, Dr. Tellfer.
12. The Nature and Treatment of Insanity produced by the use of Intoxicating Liquors, Dr. Stedman.
13. The Relations of Menstruation to Insanity, Dr. Fonerden.
14. Under what circumstances can the Insane of the Poorer Classes be properly treated with the greatest degree of Economy, Dr. McFarland.

15. The Effects upon the Insane of the use of Tobacco, Dr. Cutter.
16. Reading, Recreation and Amusements for the Insane, Dr. Galt.
17. On Water-Closets in the wards and yards of Hospitals for the Insane, Dr. Bell.
18. On the Construction and Arrangement of Institutions for the Insane in southern climates, Dr. Parker.

Resolved, That the members of this association be urgently requested, with the concurrence of the friends of patients, to make post-mortem examinations in all cases of insanity, which may prove fatal while under their care, and to report the result of their observations at the next meeting of the association.

Resolved, That each member of this association be requested to ascertain the facts and circumstances, (such as sex, age, civil state, vocation, mode and other matters susceptible of being tabularized) of each case of suicide, occurring in his respective state, between the first day of January and the last day of December, 1847, and forward an abstract of the same, as soon after the latter date as convenient, to the chairman of the committee on suicide; it being understood that in states having more than one member, they be requested to divide their states by certain territorial limits.

Resolved, That it be recommended to the officers of the different institutions for the insane in this country, to have engraved previous to the next meeting of the association, a view and ground plan of their respective establishments, and of a size that will permit their being bound with their annual reports.

Resolved, That a committee of three be appointed to publish in a collected form, the transactions of the association, or, under certain circumstances, such parts of the same as they may deem expedient.

Resolved, That the essays presented to this association are understood to be the opinions of the chairmen of the different committees by whom they have been reported, and do not necessarily express the sentiments of other members relative to their details.

Resolved, That in case the committee do not publish any of the essays, their writers then have the privilege of publishing them in a separate form, should they deem it expedient to do so.

Resolved, That the secretary be directed to publish an abstract of the proceedings of the association in the American Journal of Insanity, the American Journal of the Medical Sciences, and the New York Journal of Medicine.

The association continued its sessions till the evening of the 14th of May, and adjourned to meet in the city of New York, on the second Monday of May, 1848, at 10 o'clock, A. M.

By order of the Association.

THOMAS S. KIRKBRIDE, *Secretary*.

DOMESTIC SUMMARY.

Case of Melanosis.—In our foreign summary (p. 252,) will be found an account of two cases of melanosis of the eye, with some interesting remarks by Wm. Lawrence, Esq. In connection with this subject the following case of the same disease recorded by Dr. HENRY W. DESAUSSURE in the *Southern Journ. of Med. and Pharm.*, (March, 1846,) will be read with interest.

D. M., an Irishman of fine muscular figure, dark hair, complexion, and eyes, was a frequent inmate of the Poor House Hospital, of Charleston, between the

years 1832 and '38. He always entered the hospital to be treated for affections, incident to the loose, disorderly and intemperate life which he led. In November, 1842, he was again admitted, labouring under a mild form of conjunctivitis. He had now, however, lost much of his fine muscular figure, was somewhat emaciated; he stated his general health to be good, and only complained of the affection of the eye, for which he had entered the hospital. Upon examining the left eye, besides the symptoms of a mild form of conjunctivitis, there was seen a small round black tumour, about the size of a hazelnut, seated upon the external side of the globe of the eye, about four lines posterior to the junction of the cornea with the sclerotica, resembling very much an ebony ball cut in half, with the cut surface applied to the eyeball. The cornea was perfectly transparent, and the aqueous humour clear, but the crystaline lens had a dark hue, as if some dark fluid had been equally and uniformly diffused through it; vision was almost destroyed in that eye, the patient being but barely able to distinguish light from darkness. How long the tumour had existed could not be ascertained, as the patient was entirely unaware of its existence, and believed the sight of that eye as good as the other, until convinced of the contrary by actual experiment. The ophthalmia was of four or five weeks' existence. Under a mild antiphlogistic treatment, the inflammation was relieved, and he left the hospital in December.

In August, 1843, eight months after, he was again brought to the hospital. He was now very much emaciated, his countenance expressive of much suffering, and of that peculiar earthy cadaverous hue, indicative of great structural disease. He stated that about six weeks before, feeling some weight and pain in the right hypochondrium, he had examined the part, and felt a large hard body there. From this period, the pain gradually increased in severity; he lost his appetite and strength, and vomited frequently, after taking food. Upon examining the abdomen, the liver was found much enlarged, extending to within two inches of the crest of the ilium; it was hard and knotty to the touch, and he complained of severe pain in that region; the stomach could not retain more than ℥ii of food taken at a time; there was scarcely any appetite. The tumour of the eye had increased in size, but had become flattened by the pressure of the orbit. The patient now began to emaciate rapidly, the pain in the right hypochondrium was relieved by an anodyne, and never returned; the quantity of food retained by the stomach became gradually less, until in the last few days he could not retain more than one or two drachms of anything. In the fortnight which preceded his death, he occasionally vomited a small quantity of dark brown mucus. He died five weeks after his admission, in the last stage of marasmus, having suffered no pain after the relief given by the anodyne; without hectic, diarrhœa, or night sweats.

Autopsy fourteen hours after death. Upon cutting through the abdominal walls, an extensive layer of black matter was found deposited between the peritoneum and the abdominal muscles. This layer extended in a continuous sheet, from one iliac crest to the other, and from on a level with the umbilicus downwards to the pubis and thence deeply into the pelvis; it was three or four lines in thickness, of tolerable consistence, and presented, when cut into, a striated appearance, the striæ, consisting of fine whitish lines, running in various directions. In the midst of this layer were some masses of rather greater thickness than the rest, and apparently separated by a distinct cyst, formed by condensation of the cellular tissue. The peritoneum could be removed by careful dissection, and then was transparent, presenting no traces of melanotic infiltration. The thin fluid which exuded by pressure from this layer of black matter stained the fingers of a dark brown hue. The abdominal muscles presented no traces of melanosis, and the whole layer was deposited in the cellular tissue, lying between the peritoneum and muscles of the abdomen and pelvis. The omentum, and the surface of the intestines, were studded with innumerable quantities of black tumours, varying in size from that of a pea, to a hazelnut. Upon examination these tumours were found to be seated between the layers of the peritoneum, forming the omentum, and between the peritoneum and the muscular coat of the intestines; they were contained in thin cysts, formed apparently of condensed cellular tissue; they were of the consistence of animal jelly, and easily mashed by the fingers, which were tinged of a dark hue. The striated appearance visible in the layer lining the abdominal walls, was much less visible in these;—in the hardest it could be traced, but not

at all in the softest. The peritoneum covering these bodies was uniformly transparent when removed, and there were no traces of either recent or ancient peritonitis. The folds of the mesentery likewise contained a large number of black tumours, exactly similar in appearance and consistence to those last described. The mesenteric glands were somewhat enlarged and of a dark hue, but were not indurated when incised and pressed,—the thin dark coloured fluid which escaped did not tinge the fingers as the other tumours did. The kidneys were healthy, presenting no appearances of melanosis. The spleen enlarged. The liver was very much enlarged, extending downwards nearly to the iliac crest, and almost reaching the median line forwards—it was of a mottled black hue, and bosselated appearance. When removed from the body it weighed 10lbs. The natural structure of the liver was scarcely any where visible—here and there might be seen small islands, as it were, of a glandular structure, but the chief mass of the organ was made up of black and white tumours, varying in size from a walnut to a hen's egg. The black tumours were the largest and most numerous, but least consistent, each inclosed in a thin cyst; when incised they offered a striated appearance similar to that mentioned in describing the masses found beneath the abdominal muscles; they were of considerable consistence, creaking under the scalpel, and the thin serous fluid which exuded from their incision was quite black, staining linen and the fingers of the same hue. The whitish tumours were harder, less numerous, and of rather less size; cutting like cartilage, their cut surfaces presented the appearance of septa dividing each tumour into one or more lobules. In some of these white masses the colour approached to gray, but in none were there any black spots or lines, and the thin fluid which exuded was nearly colourless. The gall bladder was small and contained about ℥i of a very dark ropy fluid; a piece of linen dipped into it was stained dark green, with a very slight tinge of yellow.

The stomach was contracted, its mucous membrane of a dull gray colour, thickened and softened; there were no traces of melanotic deposit upon or beneath the mucous membrane of either the stomach or intestines.

The heart was hypertrophied, but no melanosis was found in or upon it.

Both lungs were adherent to the costal pleura by old adhesions. The lungs themselves were healthy in structure, except that in the upper part of the superior lobe of the left lung there was a melanotic tumour about the size of a hickory nut, completely enclosed in a cyst, the surrounding pulmonary tissue being quite healthy. This tumour, when incised, presented the same striated appearance as those of the liver.

The brain and its membranes offered no morbid appearances of any kind. Immediately above the left supra-orbital ridge of the frontal bone, and about the external termination of the superciliary ridge a mass of melanosis was found occupying the space between the dura mater, to which it was attached, and the skin, the intervening tissues, including the bone, having been removed by absorption. The internal surface of the dura mater, at the points where the tumour was attached, was smooth and unaltered, while externally several vessels of considerable size were seen making their way down to the tumour. The opening in the frontal bone was sufficiently large to admit the little finger: the tumour was covered by a cyst, and was unattached, except to the dura mater, from which it seemed to have sprung. It was very soft, being easily crushed by the fingers; no striæ or septa were visible. Upon carefully removing the left eyeball, upon which the tumour had been observed during life, it was seen that this tumour, about ten lines long by six broad, was divided by a deep depression into two nearly equal parts. Upon incising the anterior portion it was found to be covered by a thin black membrane, to which it adhered but very slightly, exactly similar in structure to the choroid coat. This membrane, after very careful dissection, was found to be the choroid coat itself, which had been pushed outwards by the gradual increase of the tumour, and had thus formed a hernia through the sclerotica—this latter having been destroyed at this point by ulceration. The tumour itself was inclosed in a cyst, and, lying immediately behind the iris, it had no intimate connections with any of the surrounding parts; was of moderate consistence, and when cut into presented a striated appearance. The posterior part of the tumour was lying upon the sclerotica immediately behind the opening, through which the anterior pro-

truded, and was firmly adherent to this membrane, the two portions being separated by a dense septum. The crystaline lens and vitreous humour were perfect and unaltered in structure, but were tinged throughout of a dark hue, looking as if slightly smoked; the colour could not be removed by washing. The muscles of the eyeball were not implicated in the disease.

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Trismus Nascentium.—Dr. V. N. Wooten of Lowndesboro', Ala., in a letter to the editors of the *New Orleans Med. and Surg. Journ.*, (No. May, 1846,) states that trismus nascentium is of fearful frequency in the cotton plantations of his section of Alabama. "I am not prepared," he remarks, "to compare it with other maladies in respect to frequency, but I believe that it destroys more negroes than any other single disease, in this region of country. In a practice of ten years amongst these plantations, I have seen a great many cases. Sometimes, I have found it of such frequent occurrence, as to present the appearance of an epidemic. Yet *I have never seen a white child afflicted with the disease.* Is this the case in New Orleans?

"Again: I have never seen a case of *decided* trismus nascentium, that did not prove fatal. Indeed, so well is this characteristic of the disease now known, that it is very generally deemed utterly useless to call in medical aid, after the initiatory symptoms are well developed.

"I have tried every plan of treatment which books, or the most anxious study on my part could suggest, but all wholly in vain.

"I have made post-mortem examinations in several cases, and found the pathological appearances as uniform as in any other disease. They are as follows:—Heavy vascular engorgement of the peritoneum throughout its whole extent, denoting the highest inflammation. All the portion surrounding the entrance of the umbilical cord into the abdomen, for a circumference of from one to three inches, was in a gangrenous condition. The liver was unnaturally heavy and stiff, with its veins fully injected with fluid blood. There was also heavy engorgement of the substance and membranes of the base of the brain, and along the medulla oblongata, and cervical portion of the spinal marrow.

"I have usually observed the first symptoms to make their appearance about the time the umbilical cord comes away, and from this I at first supposed that it was the effect of awkwardness in dressing the navel by the ignorant midwives who usually attend on the plantations, but careful investigation led to nothing conclusive on this point.

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Extra-Uterine Fœtation—Gastrotomy—cure.—Dr. Alex. H. Stevens relates in the *New York Journal of Medicine*, (May, 1846,) a case of extra-uterine fœtation, in which a full-grown fœtus was successfully extracted by him, about ten years after conception, by the operation of gastrotomy.

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Tincture of Water Pepper in Amenorrhœa.—Dr. Eberle states that he has found no remedy so effectual in the cure of amenorrhœa as the tincture of water pepper, (*Polygonum Hydropiperoides*, Mich.; *P. Punctatum*, Elliott.)

Dr. T. L. Ogier, in a paper in the *Southern Journal of Med. and Pharm.*, May, 1846, also extols it as the most certain of our emmenagogues, and relates four cases successfully treated by it. He says that he knows of no medicine that has a more decided action on the uterus in producing the menstrual discharge. The preparation used by Dr. O. was a strong tincture made from the stem, leaves, and flowers; but he thinks that the active principle of the plant resides chiefly in the leaves. The dose was a teaspoonful of the tincture, three times a day in a little sweetened water.

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Medical Schools of the United States.—From the Catalogues of these Institutions, which we have received, it appears that during the past year the number of students was nearly 5000, and that the degree of M. D. has been conferred upon 1300.

UNIVERSITY OF PENNSYLVANIA.

At a public Commencement held April 3d, 1846, in the Musical Fund Hall, Locust Street, the Degree of Doctor of Medicine was conferred by the Rev. John Ludlow, D. D., Provost, upon the following gentlemen: after which an address was delivered by Dr. William Gibson, Professor of Surgery.

NAME.	RESIDENCE.	SUBJECT OF ESSAY.
Albright, J. B. E.	Earville, Pa.	Animal Heat.
Alexander, Clark H.	Lewistown, Pa.	Acute Dysentery.
Anderson, Benjamin, S.	Haverford, Pa.	Scarlatina.
Archer, Powhatan	Velasco, Texas,	Epidemic Cholera.
Ash, James	Philadelphia, Pa.	Scrofula.
Baldridge, Joseph H.	Gallatin, Tenn.	Sulphate of Quinia.
Barnard, Williams	Jeffersonton, Ga.	Insanity.
Benson, Edwin P.	Marion, Ala.	Remittent Fever.
Bieber, Daniel H.	Womelsdorf, Pa.	Cholera Infantum.
Blount, H. Wistar	New Berne, N. C.	Origin and Non-contagiousness of Yellow Fever.
Baskervill, Robert D.	Waverley Honor, Va.	Syphilis.
Bozeman, James F.	Milledgeville, Ga.	Bilious Remittent Fever.
Brown, Benjamin F.	Westmoreland, Va.	Respiration.
Brown, George W.	Marion, Ala.	Remittent Fever.
Brown, Samuel J.	Norfolk, Va.	Anatomy and Functions of the Sympathetic.
Browne, Robert Bethell	Easton, Pa.	Scarlatina.
Burr, Richard	Philadelphia, Pa.	Myopia.
Caldwell, L. F.	Milton, Pa.	Cynanche Trachealis.
Cannon, Robert H.	Sommerville, Tenn.	Cathartics.
Cheek, William A.	Warrenton, N C.	Cynanche Trachealis.
Clarke, Edward H.	Boston, Mass.	Pneumonia.
Cobb, Gaston D.	High Rock, N. C.	Typhoid Pneumonia.
Colony, George D.	Keene, N. H.	Erysipelas.
Crisp, David H.	Prospect Hill, N. C.	Calomel.
Cummins, James	Lewistown, Pa.	Colica Pictonum.
Davis, David M.	Camden, N. J.	Constipation.
Dearing, John J.	Flint Hill, Va.	Dysentery.
De Graffenried, Edwin F.	Columbus, Ga.	Reproduction of Animal Life.
Deyerlé, Charles P.	Salem, Va.	Hæmorrhois.
Donaghe, Briscoe B.	Staunton, Va.	Scarlatina.
Dortch, Isaac F.	Rocky Mount, N. C.	Sulphate of Quinine.
Dougherty, William	Appling, Ga.	Acute Hepatitis.
Duke, Abram B.	Georgetown, Ky.	Cynanche Trachealis.
Du Val, John Pope	Tallahasse, Florida,	Marsh Miasmata.
Eborn, John R.	Greenville, N. C.	Influence of the Genital Organs.
Eichelberger, John B.	Pomaria, S. C.	Intestinal Worms.
Farrar, Caleb F.	Natchez, Missis.	Leucorrhea.
Fechtig, Samuel C.	Clear Spring, Md.	Principles of Diagnosis.
Field, Furman	Milford, N. J.	The Influence of the Mind on Health.
Fisk, Samel A.	Cambridge, Mass.	Cynanche Trachealis.
Fleming, George C.	Jacksonville, E. Flor.	Masturbation.
Gaines, Edmund P.	Mobile, Ala.	Lithic Acid Diathesis.
Gaines, Thomas J.	Richmond, Va.	Asthma.
Garland, John S.	Detroit, Mich.	Acute Hepatitis.

NAME.	RESIDENCE.	SUBJECT OF ESSAY.
Gibson, J. Gregg	Winchester, Va.	Stricture of Urethra.
Gloninger, C. D.	Lebanon, Pa.	Tubercular Consumption.
Gower, Leonidas F.	Nashville, Tenn.	Aneurism.
Greene, Francis	Philadelphia, Pa.	General Diagnosis.
Hagan, Robert	New Orleans, La.	Chronic Gastritis.
Hallowell, Jonathan	Philadelphia, Pa.	Iodide of Potassium.
Hamilton, Joseph C. H.	Mobile, Ala.	Yellow Fever.
Harris, James S.	Lewisburg, Pa.	Chorea Sancti Viti.
Harrison, Benjamin	Charles City, Va.	Intermittent Fever.
Hawkes, Athern B.	Frederick, Md.	Secale Cornutum.
Hinkle, Franklin	Philadelphia, Pa.	Medicinal properties of Argenti Nitras.
Holmes, Joseph F.	Rodney, Missis.	Puerperal Fever.
Holmes, Robert R.	Hernando, Missis.	Cynanche Trachealis.
Horner, Charles	Gettysburg, Pa.	Empyema.
Huff, Halloway	Centreville, Missis.	Acute Rheumatism.
Herman, Alfred J.	Kutztown, Pa.	Abnormal Menstruation.
Jackson, William R. A.	Gainsville, Missis.	Typhoid Fever.
Jacobs, William S.	Leesburg, N. C.	Acute Dysentery.
Johnson, J. Foster	Murfreesboro, Tenn.	Pleuritis.
Jones, William H.	Boydton, Va.	Opium, &c.
Ketchum, George A.	Mobile, Ala.	The Morbific Effects of Remedies.
Kinney, William, Jr.	Staunton, Va.	Acute Laryngitis.
Ker, George	Eastville, Va.	Hæmoptysis.
Lang, John H.	Mobile, Ala.	Signs of Pregnancy.
Lawrence, George W.	Baltimore, Md.	Delirium Tremens.
Leiper, Armstrong	Philadelphia, Pa.	Hysteria.
Lesley, Allen Voorhees	Delaware City, Del.	Erysipelas.
Lewis, G. W.	King George C. H., Va.	Scrofula.
Litchfield, John D. M.	Abington, Va.	Polypus Uteri.
Love, William Abram	Camden, S. C.	Placenta Prævia.
Lowe, John T.	Huntsville, Ala.	Delirium Tremens.
Magruder, Julian	Frederick, Md.	Gun-shot Wounds of the Thigh, &c.
Marable, Thomas E.	Lawrenceville, Va.	Inversion of the Uterus.
Marriott, Robert H.	Raleigh, N. C.	Pleuritis.
Marshall, Nathaniel B.	Leed's Manor, Va.	Scarlatina.
Massie, Thomas E.	Hot Springs, Va.	Rationale of Endosmosis.
Mercer, William W.	Philadelphia, Pa.	Apoplexy.
Millard, Henry J.	Leonardtown, Md.	Tetanus.
Miller, Matthias H.	Gloucester C. H., Va.	Scarlatina.
Miller, Robinson	Norfolk, Va.	Inguinal Hernia.
Minge, David	Petersburg, Va.	Medulla Spinalis.
Moore, Council W.	Marion, Ala.	Acute Gastritis.
Moore, Meriwether G.	Huntsville, Ala.	Auscultation of the Respiration and Voice.
Morgan, William M'K.	Pittsburg, Pa.	The Blood.
Morris, William S.	Montpelier, Va.	Uterine Hemorrhage.
Musser, William	Lewisburg, Pa.	Hemorrhoids.
Morrow, James	Charleston, S. C.	Hyperæmia.
M'Lean, Alexander S.	Harrisburg, Pa.	Compat. of Pract. of Med. with Pract. of Religion.
M'Clure, W. A.	Clarksville, Tenn.	Signs of Pregnancy.
M'Intosh, James C.	Knoxville, Tenn.	Tetanus.
M'Kennan, Thomas	Washington, Pa.	Bronchocele of Monongahela Valley.
M'Kibbin, David J.	Middleton, Pa.	Acute Iritis.

NAME.	RESIDENCE.	SUBJECT OF ESSAY.
M'Laurin, Lauchlin	Westville, Missis.	Congestive Fever.
M'Nairy, Bartlett Y.	Greensboro, N. C.	Cynanche Trachealis.
Nelson, Robert W.	Frederick, Md.	Iodine.
Nowell, John L., Jr.	Charleston, S. C.	Inflammation.
Nowlin, James	Rocky Mount, Va.	Pneumonia.
Oakford, Samuel J.	Philadelphia, Pa.	Colica Pictonum.
Oakman, Erwin H.	Augusta, Ga.	Tobacco.
Ogden, Benjamin Russel	Trenton, N. J.	Typhus Fever.
Overstreet, James T.	Washington, D. C.	Acute Peritonitis.
Parker, C. Collins	Philadelphia, Pa.	Diseases of the Heart.
Passmore, Thomas	Philadelphia Co., Pa.	Scarlatina.
Paxton, John W.	Knoxville, Tenn.	Malaria.
Peck, Erastus W.	Pearisburg, Va.	Red Sulphur Springs.
Perry, Nathan	Bigbyville, Tenn.	Remittent Fever.
Pierce, Moses G.	Williamston, N. C.	Atmospheric Air.
Powell, Thomas S.	Lawrenceville, Va.	Dysentery.
Probst, Franklin A.	Easton, Pa.	Hæmorrhoids.
Quin, Daniel H.	Holmesville, Missis.	Dyspepsia.
Reading, Alfred	Trenton, N. J.	Organic Life.
Reidenaur, J. A.	Lebanon, Pa.	Onychia Maligna.
Reynolds, Bernard B.	Lewisburg, Va.	Animal Heat.
Robb, Edward C.	Gallatin, Tenn.	Medicine an Inductive. Science.
Robertson, Flavius J.	Nashville, Tenn.	Cinchona.
Rose, Robert W.	Norfolk, Va.	Syphilis.
Ross, J. Smith	Bath, N. H.	Fistula in Ano.
Ruff, Orlando C.	Newberry, S. C.	Cold as a Morbific Agent.
Sanders, Robert A.	Smithfield, N. C.	Intermittent Fever.
Schneck, Benjamin F.	Lebanon, Pa.	Inflammation.
Scott, Martin P.	Fauquier, Va.	Dysentery.
Seay, John, Jr.	Nashville, Tenn.	Blood in Phlegmasia.
Shantz, Tilghman P.	Allentown, Pa.	Amenorrhœa.
Sharber, Joseph W.	Eagleville, Tenn.	Typhoid Fever.
Shields, Thomas P.	Cartersville, Va.	Anatomy and Physiology of the Kidneys.
Shoemaker, William L.	Georgetown, D. C.	Phthisis Pulmonalis.
Skipwith, George N.	Genito, Va.	Vesical Calculi.
Steinberger, J. Dunott	Philadelphia, Pa.	Origin of Malaria.
Stout, W. Ten-Broeck	Allentown, N. J.	Chronic Bronchitis.
Strawn, James J.	Philadelphia, Pa.	Gonorrhœa.
Strong, Elisha H.	Colbert, Missis.	Dysentery.
Swift, Wesley	Yanceyville, N. C.	Acute Gastritis.
Summers, John E.	Middleburg, Va.	Puerperal Peritonitis.
Talbott, David L.	Cincinnati, Ohio.	Vis Medicatrix Naturæ.
Taliaferro, Alfred W.	Gloucester C. H., Va.	Delirium Tremens.
Tarry, William L.	Boydton, Va.	Tertian Fever.
Thompson, John H.	Unionville, S. C.	Gastritis.
Tucker, George W.	Natchez, Missis.	Yellow Fever.
Turner, Joel L.	Lincolnton, Ga.	Capillary Circulation.
Tyler, John Eugene	Westborough, Mass.	Iodine.
Vincent, Francis R.	Petersburg, Va.	Dysentery.
Walker, Amos	Philadelphia, Pa.	Electro-Magnetism.
Walker, William E.	Brunswick Co., Va.	Cholera Infantum.
Waller, Matthew P.	Williamsburg, Va.	Dysentery.

NAME.	RESIDENCE.	SUBJECT OF ESSAY.
Walton, Franklin B.	Cross Plains, Tenn.	Scarlatina.
Ward, Andrew J.	New Milford, Pa.	Modus Operandi of Medicines.
Waring, Thomas L.	Ayletts, Va.	Respiration.
Watson, Barron C.	Germantown, Pa.	Influence of the Brain on the Organic Functions.
Welford, J. Spotswood	Fredericksburg, Va.	Acute Pericarditis.
White, Benajah L.	Williamston, N. C.	Fungus Articuli.
White, Henry O.	Salem, Mass.	Tetanus.
Whitfield, Needham H.	Aberdeen, Missis.	Remittent Fever.
Wickham, Robert C.	Taylorsville, Va.	State during Pregnancy.
Williams, James E.	Port Royal, Va.	Fracture of the Femur.
Williamson, Jacob W.	Ringoes, N. J.	Scarlatina.
Wirtz, Horace Raguet	Philadelphia, Pa.	Hereditary Disease.
Wistar, Caspar	Philadelphia, Pa.	Origin and Progress of Medicine.
Wootton, William T.	Rockville, Md.	Tetanus.
Workman, Thomas J.	Camden, S. C.	Puerperal Fever.
Yonge, Easton	Columbus, Ga.	Tuberculosis.

At a Public Commencement held in July, 1845, the following gentlemen received the Degree of Doctor of Medicine.

NAME.	RESIDENCE.	SUBJECT OF ESSAY.
William Fuqua.	Virginia,	Acute Peritonitis.
Joseph Sackett Hart,	Pennsylvania,	Diarrhœa,
William W. B. James,	South Carolina,	Acute Gastritis.
Timothy Thorp,	Alabama,	Uterine Hemorrhage.

Total, 168.

W. E. HORNER,
Dean of the Medical Faculty.

New Publications.—The following interesting works have recently been published by Messrs. Lea & Blanchard:

Phillips on the Nature, Causes, Treatment, &c., of Scrofula. See Review in the present No. of this Journal.

Carpenter's Elements of Physiology. (See notice in this No., p. 179.)

Simon's Animal Chemistry, Part II., completing the work.

Horner's United States Dissector. This work has been entirely re-written.

A new edition of Dunglison's Medical Dictionary.

Kirby & Spence's Elements of the Natural History of Insects. This work treats of the manners and economy of insects, their metamorphoses, food, stratagems, habitations, societies, hybernation, instinct, &c. &c. &c.

Works Preparing for Publication.—We have pleasure in announcing the following valuable works as being in preparation for publication by Messrs. Lea & Blanchard:

Carpenter's Animal Physiology, revised by the author for republication in this country. Also Comparative Physiology, by the same author.

Royle's Manual of Materia Medica and Therapeutics. We have seen a portion of this work; the illustrations are very beautiful.

Jones' Treatise on Ophthalmic Medicine and Surgery.

Small Books on great subjects. Some of these are well worthy the attention of the profession.

Hasse's Pathological Anatomy of the Organs of Circulation and Respiration.

Metcalfe on Caloric. See Review in this Journal for April last.

A complete Medical Botany, by Dr. R. E. Griffith. With numerous illustrations.

UNIVERSITY OF PENNSYLVANIA.—MEDICAL DEPARTMENT.

SESSION OF 1846-47.

The Medical Lectures will commence on Monday, November the 2d, and be continued, under the following arrangement, to the middle of March ensuing:

Practice and Theory of Medicine, - -	By NATHANIEL CHAPMAN, M. D.
Chemistry, - - - - - -	ROBERT HARE, M. D.
Surgery, - - - - - -	WILLIAM GIBSON, M. D.
Anatomy, - - - - - -	WILLIAM E. HORNER, M. D.
Institutes of Medicine, - - - - -	SAMUEL JACKSON, M. D.
Materia Medica and Pharmacy, - - -	GEORGE B. WOOD, M. D.
Obstetrics and the Diseases of Women and Children,	HUGH L. HODGE, M. D.

Clinical Instruction at the Pennsylvania Hospital.

The rooms for Practical Anatomy will be open from October 1st, to the end of March ensuing. JOHN NEILL, M. D., Demonstrator.

Extensive cabinets of Anatomy, Materia Medica, Chemistry, Surgery, and Obstetrics, exist, and are in a course of annual improvement.

The Professor of Materia Medica, besides his cabinet, has a large and well furnished Conservatory, from which are exhibited, in the fresh and growing state, the native and exotic Medicinal Plants.

W. E. HORNER, M. D., *Dean of the Medical Faculty.*
263 *Chestnut Street, Philada. June 1st*, 1846.

JEFFERSON MEDICAL COLLEGE.

SESSION OF 1846—7.

The regular Course of Lectures will commence on Monday, the second day of November, and end on the last day of February.

ROBLEY DUNGLISON, M. D., Professor of Institutes of Medicine.

ROBERT M. HUSTON, M. D., Professor of Materia Medica and General Therapeutics.

JOSEPH PANCOAST, M. D., Professor of General, Descriptive and Surgical Anatomy.

JOHN K. MITCHELL, M. D., Professor of Practice of Medicine.

THOMAS D. MUTTER, M. D., Professor of Institutes and Practice of Surgery.

CHARLES D. MEIGS, M. D., Professor of Obstetrics and Diseases of Women and Children.

FRANKLIN BACHE, M. D., Professor of Chemistry.

Every Wednesday and Saturday during the Course, Medical and Surgical cases are investigated and prescribed for before the class. During the past year not fewer than 1,000 cases were treated, and upwards of 172 were operated on. The Clinical Lectures are so arranged as to permit the student, should he desire it, to attend the Medical and Surgical practice and Lectures at the Pennsylvania Hospital.

On and after the first of October, the Dissecting Rooms of the College will be open under the direction of the Professor of Anatomy and the Demonstrator.

Owing to the large size of the class, which numbered 469 during the last session, it became expedient to make extensive and important alterations in the College edifice. These will be completed by the first of September.

R. M. HUSTON, M. D., *Dean of the Faculty.*
No. 1 *Girard Street.*